
PROGRAM BOOK

INTERNATIONAL CONFERENCE ON ADVANCED MATERIAL TECHNOLOGY IN
CONJUNCTION WITH INTERNATIONAL CONFERENCE OF MULTIDISCIPLINARY
RESEARCH 2019 (ICAMT-ICMR 2019)



OCTOBER 8, 2019
BOGOR
INDONESIA

OPENING SPEECH



International Conference on Advance Materials and Technology *in Conjunction with* the International Conference of Multidisciplinary Research 2019 (ICAMT-ICMR 2019) will be held in Bogor on 8 -9 October 2019. The theme of this conference is “***Innovation of Advanced Materials Technology and Multidisciplinary Research for a Better Life***”.

The conference is organized by the Indonesian Material Research Society (MRS-INA) together with the University of Prof. Dr. Moestopo (Beragama), which aims to provide an international forum in facilitating the presentation of scientific results in the fields of material science and other multidisciplinary sciences by national scientists, academics, industry and government, regional and international. In this regard, the presence of world-class speakers invited to scientific programs is a must. On behalf of the 2019 ICAMT-ICMR MRS-INA organizing committee, it is an honor for us to invite you to participate and present your current work at this conference and to enjoy Bogor Indonesia.

Jakarta, 21 January 2019

Prof. Dr. Rudy Harjanto
Chair of the Organizing Committee

GENERAL INFORMATION

Scope

ICAMT-ICMR 2019 consist of International Symposia on:

A. International Conference on Advance Material Technology 2019 (ICAMT 2019)

- Energy and Environment Materials
- Advanced Functional and Structural Materials
- Polymer-, Bio- and Soft Materials
- Nano Science and Technology
- Computational Materials, Modeling and Simulation
- Materials Processing and Characterization
- Nuclear Science and Technology Applications
- Other Related Topics

B. International Conference on Multidisciplinary Research 2019 (ICMR 2019)

- Social Science
- Humanities
- Dentistry
- Economy
- Business and Management
- Information Technology & Communication
- Industrial and Mining Engineering

Venue

Time : Tuesday – Wednesday, October 8-9, 2019

Venue : Aston Sentul Lake Resort & Conference Center

[Jl. Pakuan No. 3, Sentul City, BOGOR, WEST JAVA – INDONESIA](#)



AGENDA OF ICAMT-ICMR 2019

TIME/DATE	MONDAY 7 OCTOBER 2019	TUESDAY 8 OCTOBER 2019	TIME/DATE	WEDNESDAY 9 OCTOBER 2019
07:00 – 08:30	SECRETARIAT PREPARATION- EXHIBITION	REGISTRATION	07:00 – 08:00	REGISTRATION
08:30 – 09:00		OPENING REMARKS	08:00 – 10:00	PARALLEL SESSION & PRACTICUM
09:00 – 09:30		MoU, PHOTO SESSION	10:00 – 10:30	COFFEE BREAK
09:30 – 10:00		COFFEE BREAK	10:30 – 11:45	PLENARY SPEAKERS & LAUNCHING NBRI
10:00 – 12:00		PLENARY SPEAKERS	11:45 – 12:15	LUNCH BREAK + CHECKOUT
12:00 – 13:00	LUNCH BREAK + CHECK IN		12:15 – 13:00	FROM HOTEL TO MUSEUM OF INDONESIAN PRESIDENTIAL PALACE
13:00 – 15:20	CHECK IN PROCESS	PARALLEL SESSION & LECTURER	13:00 – 14:30	VISIT MUSEUM OF INDONESIAN PRESIDENTIAL PALACE
15:20 – 15:35	REGISTRATION DESK OPEN	COFFEE BREAK	14:30 – 15:00	FROM MUSEUM OF INDONESIAN PRESIDENTIAL PALACE TO BOTANICAL GARDEN
15:35 – 16:35		PARALLEL SESSION & PRACTICUM	15:00 – 17:00	VISIT BOTANICAL GARDEN
16:35 – 17:30		POSTER SESSION	17:00 – 17:30	FROM BOTANICAL GARDEN TO GRAND GARDEN RESTO & CAFE
17:30 – 18:30			17:30 – 18:30	CLOSING & AWARD CEREMONY AT GRAND GARDEN RESTO & CAFE
18:30 – 21:00		DINNER	18:30 – 19:30	SUNSET DINNER AT GRAND GARDEN RESTO & CAFE

- EXHIBITION 8 – 9 OCTOBER 2019

Tuesday, 8 October 2019

Time	Agenda Day 1				WORKSHOP ON LITHIUM ION BATTERY	
07.00 – 08.30	Registration					
08.30 – 09.00	Opening Ceremony (Room : ADHIWANGSA 1 & 2) Welcome Speech by Prof. Dr. Rudy Harjanto, M.Sn (Chair of ICAMT-ICMR 2019) and Prof. Dr. rer. nat Evvy Kartini (President of MRS-INA) (Indonesia) Opening Speech by Prof. Dr. Soo Wohn Lee (IUMRS President) (Korea)					
09.00 – 09.30	MoU, Photo Session (PIC: Dewi Koraag)					
09.30 – 10.00	Coffee Break					
10.00– 10.30	Plenary 1.1	Prof. H. Mohamad Nasir, Ph.D., Ak (Minister of Institution Science Technology and Higher Education) *tbc			Chair: Prof. Alan Drew (Queen Mary University of London) Mrs. Ambar Pertiwi (Universitas Prof. Dr. Moestopo Beragama)	
10.30 – 11.00	Plenary 1.2	Prof. Anhar Riza Antariksawan (Head of National Nuclear Energy Agency)				
11.00 – 11.30	Plenary 1.3	Prof. Dr. Andriwo Rusydi (National University of Singapore)				
11.30 – 12.00	Plenary 1.4	Prof. Madya Dr. Muhammad bin Muda (University Utara Malaysia)				
12.00 – 13.00	Lunch					
	International Symposia on Computational Materials, Modeling and Simulation (CCM), Materials Processing and Characterization (MPC) Room : ADHIWANGSA 1 (6 th Floor)	International Symposia on Advanced Functional & Structural Materials (AFS) Room : ARGA 1 (5 th Floor)	International Symposia on ICMR Economy and Business (EB) Room : ARGA 2 (5 th Floor)	International Symposia on ICMR Social Science and Humanities (SSH) Room : ADHIWANGSA 2 (6 th Floor)	Workshop On Lithium Ion Battery (LIB) Chair : Prof. Santi Maensiri (Suranaree University of Technology) Room : BHUWANA 2 (5 th Floor)	Time
13.00 – 13.30	Prof. Stefan Adams (NUS) (Singapore) Prof. Dr. Soo Wohn Lee (IUMRS President) (Korea)	Prof. Dr. Taku Sato (Tohoku University) (Japan)	Prof. Dr. H. Wibowo, S.E., M.Phil (UPDMB) (Indonesia) Komm Pechintron (RMUTK) (Thailand) PIC : Shinta	Prof. Madya Dr. Muhammad bin Muda (UUM) (Malaysia) PIC : Saryadi	Lecture 1 Dr I Made Tangkas (President IOI) Prospect of Electric Vehicle in Indonesia	13.00 – 13.30
13.30 – 13.40	Chair : Prof. Santi Maensiri (Suranaree University of Technology) (Thailand) PIC : Dr. Heri Jodi	Chair : Prof. Yudi Dharma (Indonesia) PIC : EBS	EB 01	SSH 01	Lecture 2 Dr Alexey Glushenkov (ANU) Battery R&D in Australia	13.30 – 14.00
13.40 – 13.50			EB 02	SSH 02		
13.50 – 14.00	CCM 01	AFS 01	EB 03	SSH 03	Lecture 2 Dr. Agus Purwanto (UNS) LIB Cell Production Technology	14.00 – 14.30
14.00 – 14.10	CCM 02	AFS 02	EB 04	SSH 04		
14.10 – 14.20	MPC 01	AFS 03	EB 05	SSH 05		
14.20 – 14.30	MPC 02	AFS 04	EB 06	SSH 06		
14.30 – 14.40	MPC 03	AFS 05	EB 07	SSH 07	Lecture 3 Choirul Hudaya (UI) Lithium Ion Battery Application	14.30 – 15.00
14.50 – 15.00	MPC 04	AFS 06	EB 08	SSH 08	Introduction to Practicum on Battery Preparation / Battery Componen Sudaryanto, BATAN	15.00 – 15.20
15.00 – 15.10	MPC 05	AFS 07	EB 09	SSH 09		
15.10 – 15.20	MPC 06	AFS 08	EB 10	SSH 10		



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in conjunction with

INTERNATIONAL CONFERENCE OF MULTIDISCIPLINARY RESEARCH (ICMR)

(ICAMT-ICMR 2019)

Bogor – Indonesia, October 8-9, 2019

Website: <http://mrs-ina.org/licamt-icmr2019>



Tuesday, 8 October 2019

15.20 – 15.35	COFFEE BREAK					
15.35 – 15.45	MPC 07	AFS 09	EB 11	SSH 11	Practicum on Battery Preparation	15.35 – 16.00
15.45 – 15.55	MPC 14	AFS 10	EB 12	SSH 12		
15.55 – 16.05	MPC 15	PBS 01	EB 13	SSH 13		
16.05 – 16.15			EB 14	SSH 14	Practicum on Battery Preparation	16.00 – 17.30
16.15 – 16.25			EB 15	SSH 15		
16.25 – 16.35			EB 16	SSH 16		
16.35 – 17.30	POSTER SESSION					
18.30 – 21.00	Dinner					

Wednesday, 9 October 2019

Time	Agenda Day 2				WORKSHOP	
07.00 – 08.00	Registration					
	International Symposia onNuclear Science and Technology Application (NST),Materials Processing and Characterization (MPC) Room : ARG 1 (5 th Floor)	International Symposia on Energy and Environment Materials (EEM) Room : ARG 2 (5 th Floor)	International Symposia on ICMR IT & Communication (ITC) Room : BHUWANA 3 (5 th Floor)	International Symposia on ICMR Social Science and Humanities (SSH) Room : BHUWANA 4 (5 th Floor)	Workshop On Lithium Ion Battery: Chair : Budi Santoso / Sudaryanto Room : BHUWANA 2 (5 th Floor)	Time
08.00 – 08.30	Prof. Dr. Herman Yuwono (UI) (Indonesia) Chair : Prof. Dr. Taku Sato (Japan) PIC Leli Deswindi	Dr. Alexey Glushenkov (ANU) (Australia) Chair : Prof. Dr. Soo Wohn Lee (Korea) PIC : Teguh YS P Putra	Prof. Dr. Rudy Harjanto, M.Sn (UPDMB) (Indonesia) PIC : Kris	Prof. M. Syafii Anwar (UPDMB) (Indonesia) PIC : Ajury	Lecture 4 Dr. Ratih Amri (Dir. MMII) <i>Mining and Metals Industry in Indonesia</i>	08.00–08.30
08.30 – 08.40	NST 01	EEM 01	ITC 01	SSH 17	Lecture 5 Prof. Dr. Evvy Kartini (BATAN) <i>Review of LIB Basic & Application</i>	08.30–09.00
08.40 – 08.50	MPC 08	EEM 02	ITC 02	SSH 18		
08.50 – 09.00	MPC 09	EEM 03	ITC 03	SSH 19		
09.00 – 09.10	MPC 10	EEM 04	ITC 04	SSH 20	Introduction to Practicum on Battery Testing (Subhan, LIPI)	09.00–09.20
09.10 – 09.20	MPC 11	EEM 05	ITC 05	SSH 21		
09.20– 09.30	MPC 12	EEM 06	ITC 06	SSH 22	Practicum on Battery Testing	09.20 – 10.20
09.30– 09.40	MPC 13	EEM 07	ITC 07	SSH 23		
09.40 – 09.50			ITC 08	SSH 24		
09.50– 10.30	COFFEE BREAK					
10.30 – 11.00	Plenary Session 2.1	Prof. Alan Drew (Queen Mary University of London) (UK)				
11.00 – 11.30	Plenary Session 2.2	Prof. Santi Maensiri (Suranaree University of Technology) (Thailand)				
11.30 – 11.50	Pleenary Session 2.3 (N-BRI)	Prof. Dr. rer. nat. Evvy Kartini (National Nuclear Energy Agency) (Indonesia)				
11.50 – 12.15	LUNCH AND CHECK OUT					
12.15 – 13.00	From Hotel to Museum of Indonesian Presidential Palace					
13.00 – 14.30	Visit Museumof Indonesian Presidential Palace					
14.30 – 15.00	Leaving to Bogor Botanical Garden					
15.00 – 17.00	Visit Bogor Botanical Garden					
17.00 – 17.30	From Botanical Garden to Grand Garden Resto & Café					
17.30 – 18.30	Closing and Award Ceremony at Grand Garden Resto & Café					
18.30 – 19.30	Sunset Dinner at Grand Garden Resto & Café					

PLENARY SPEAKERS

Prof. H. Mohamad Nasir, Ph.D., Ak (Indonesian Minister of Research, Technology, and Higher Education)



Prof. Muhammad Nasir received his Ph.D. from Universiti Sains Malaysia in 2004. His expertise are behavioral and management accounting and also he hold the professional certificate accountant. He was an auditor on his early career. He started in Duta Karya Audit service in 1986 and moved to Drs. Tahrir Hidayat public accountant office. In 1990, he started his academics career as lecturer in Faculty of Economy, Diponegoro University until 2014. Currently, he is an associate lecture for management master program in Riau Pekanbaru University. He has given a lecture in management control systems, management accounting, strategic management, organizational behaviour, behavioural accounting, and property management. Prior to his position as Minister, Prof. Muhammad Nasir have been positioned in some important roles. Between 1996 and 1998 he was appointed as secretary for department of accountancy, Diponegoro University. Then, he was elected as Chief of accountancy master program, Diponegoro University. In 2011 – 2014, he held the position of dean of faculty of economics and bussiness, Diponegoro University.

Prof. Dr. Ir. Anhar Riza Antariksawan (Head of National Nuclear Energy Agency Indonesia)

After earning a postgraduate degree in Energy Physics at the National Polytechnique de Grenoble Institute, France in 1989, his doctoral degree was later achieved from the same institute in 1993. Anhar joined BATAN in 1986 as a researcher at The Reactor Safety Technology Development Center (PTKRN). Anhar's career as a BATAN official began as the Head of Accident Mitigation and Risk Analysis in 1999. Anhar was promoted to the position of the Head of Nuclear Safety and Reactor Technology Center for the period 2006-2008. Then, Anhar successfully served as Deputy for Basic and Applied Research in 2008-2013, continued to serve as Deputy Head of BATAN in the Utilization of Nuclear Technology in 2014-2016. Now Anhar served as Head of BATAN and was appointed on June 28, 2019.



Prof. Dr. rer. nat. Evvy Kartini (President of MRS-INA) National Nuclear Energy Agency (BATAN) – Indonesia)



Evvy Kartini is an expert on the neutron scattering and respected internationally. Her international reputation in the field of neutron scattering and solid state ionics, has been well established. She began her research on Superionic glasses early 1990, at Hahn Meitner Institute, Berlin, Germany and supervised by well known scientists Prof. Dr. Ferenc Mezei. In 1994-1995, during her PhD work, she joint McMaster University, under supervision of Prof. Dr. Malcolm F. Collins. The existence of Boson peaks in ZnCl₂ and KCl, glasses were an interesting phenomena, therefore she conducted experiment inelastic neutron scattering at Nuclear Research Reactor, Chalk River Laboratory, Canada. In 1995-1996, she returned to Germany, and finished her PhD at the Technical University (TU), Berlin, Germany. She has been performing international collaborations with prominent International scientists from Bragg Institute, Australia Nuclear Science and Technology Organization (ANSTO), Australia; Japan Proton

Accelerator Research Complex (J-Parc), Japan; High Energy Accelerator Research Complex (KEK), Japan; Ibaraki University, Japan; Tohoku University, Japan etc; McMaster University, Canada; and former Hahn Meitner Institute, Berlin, Germany. She has been represented as a leader (President) of the Indonesian Neutron Scattering Society (INSS) since 2013. Since 2012, Evvy Kartini has been appointed as one of referee members of the National Accreditation Journal of the Indonesian Institute of Science. She has been evaluating and reviewing various national journals and contributing on their quality improvements. She has been an editor of several national journals, such as Makara Science (University of Indonesia), Indonesian Journal of Mathematic and Science (ITB), Indonesian Journal of Materials Science (BATAN), etc.

Prof. Soo Wahn Lee (President IUMRS – Korea)

Professor Lee received his PhD degree in materials engineering from the University of Illinois— Chicago in 1986. After postdoctoral training, he had researched the development of wear maps in advanced structural ceramics at the National Institute of Standards and Technology (NIST). He then joined Sun Moon University as an assistant professor in 1993 and became a full professor in 2000. In 1999, Lee was an invited professor at ISIR (the Institute of Scientific and Industrial Research) within Osaka University in Japan. Prof. Soo Wahn Lee was a professor in the Department of Materials Engineering at Sun Moon University in Korea. Now he belongs to the Department of Environment and Chemical Engineering. His current research interests include using microstructure design of Sialon Ceramics for multi-functional properties such as high thermal conductivity and high transparency, the development of photocatalysts by using nanocrystalline oxide ceramic powders, low friction of graphene coatings, and electroplating of Ni-nano ceramic composites. In 2015-2016 he served the first vice president of the IUMRS (International Union of materials Research Society). For two years of 2017-2018 he is the president of the IUMRS.



Prof. Alan Drew (Queen Mary University of London)



Head of the Condensed Matter Research Centre in Queen Mary University of London (Acting Head Oct 2016 – Feb 2017; Head March 2017 – present) Responsible for the overall management of about sixty researchers, comprising 12 academic staff with their PhD students and postdoctoral researchers. He has been a member of the MRI Senior Management Team since November 2016, and in September 2018 I was asked to take on the Interim Directorship to bring about improvements to MRI performance, with a specific focus on increasing grant income, industrial engagement and interdisciplinarity. The responsibilities are to provide strategic leadership for the research activities of around 200 researchers, including more than 60 academic staff, in 5 Schools across 2 Faculties. Work so far has been focused on “getting the house in order”, but the coming months should be about defining an overall vision and strategy.

Prof. Santi Maensiri (Suranaree University of Technology - President of MRS – Thailand)

Prof. Dr. Santi Maensiri is the Director of SUT Center of Excellence in Advanced Functional Materials (SUT-AFM) and Vice-Rector for Academic Affairs and Internationalization, Suranaree University of Technology, Nakhon Ratchasima, Thailand. He is the author of over 225 papers with citations over 3400 times and h-index of 31 in ISI journals. His research of interest is in the fields of materials physics and nanostructured materials, which focus mainly on the fabrication, properties, and applications of materials. The materials of interest include: 1) functional nanostructured materials, 2) diluted magnetic semiconductors and magnetic nanoparticles, 3) giant dielectric ceramics and nanocomposites, and 4) electrospun nanofibers of ceramics, polymers, and nanocomposites for electronic device, environmental, and energy applications. Prof. Maensiri received his BSc. Degree (Physics) from Khon Kaen University, Thailand, M.Sc. degree (Ceramic Processing) from Leeds University, and D.Phil. degree (Materials) from Oxford University, U.K. He received many research awards including Thai Young Scientist Award 2007 (Physics), TWAS Prize 2009 for Young Scientists in Thailand in Physics, TRF-CHE-SCOPUS Researcher Award 2010 (Physical Sciences), Thailand Research Fund (TRF) Senior Research Scholar 2013, and Thailand National Outstanding Researcher Awards 2013 (NRCT). Prof. Maensiri is the President of Materials Research Society of Thailand (MRS-Thailand).



KEYNOTE SPEAKERS

Prof. Stefan Adams (National University of Singapore, Singapore)



After his Ph.D. from U. Saarbrücken/Germany in 1992, Stefan Adams worked as Post-Doc at Max-Planck Institute for Solid State Research in Stuttgart and as Lecturer at Göttingen University, before joining National University of Singapore in 2005, where he is now Assoc. Professor for Materials Science and Engineering as well as Adjunct Researcher at the A*Star Institute for Materials Research and Engineering (IMRE), the Solar Energy Research Institute Singapore (SERIS) and the NUS Centre for Advanced 2D Materials. Adams serves the Asian Society for Solid State Ionics as their Secretary, as well as the Materials Research Society of Singapore as Joint Secretary and is a member of the Singapore National Committee for Crystallography. He is Editorial Board member of several journals incl. Acta Crystallographica B, Solid State Ionics, Ionics etc..

Prof. Taku J Sato (Tohoku University, Japan)

Prof. Taku Sato received his Ph.D from University of Tokyo, Japan in 1996. Upon the completion of his Ph.D, he became the staff researcher in National Research Institute for Metals, Tsukuba, Japan until 2001. During 2004–2012, he became an Associate Professor in Institute for Solid State Physics, University of Tokyo. He is responsible for one triple axis spectrometer (GPTAS) and successfully teaching three Ph.D students and more Masters at Department of Applied Physics. Currently, he became Professor for Institute of Multidisciplinary Research for Advanced Materials in Tohoku University, Japan. Prof. Taku J Sato has expertise in Neutron scattering technique and neutron inelastic scattering analysis as well as single crystal growth and their bulk property characterizations. He has worked on the neutron scattering for more than 20 years using both the reactor- and accelerator-based neutron sources, which include research reactors at JAEA, NIST, ORNL, ILL etc, as well as accelerators such as J-PARC and SNS. His main objectives are to elucidate novel many-body states in condensed matters such as heavy fermions, frustrated magnets, and quasicrystals.



Prof. Akhmad Herman Yuwono (Universitas Indonesia)

Prof. Dr. Akhmad Herman Yuwono obtained his bachelor degree in Metallurgical Engineering from Universitas Indonesia. He continued his study for master level at University of Cambridge-UK through support from Cambridge Overseas Trust-British Embassy Scholarships. His PhD degree was taken from National University of Singapore (NUS) with specialty on the fabrication and characterization of inorganic-organic nanohybrids for photonic application. For this purpose, Dr. Yuwono has developed a modified technique combining wet chemistry sol-gel technique and post-hydrothermal treatment at low temperature in order to obtain highly crystalline inorganic nanoparticles while maintaining the integrity of organic matrix, where such effect could not be obtained through conventional thermal annealing/calcination process. His current research includes the fabrication of nanostructure inorganic semiconductor oxides for energy applications such as dye sensitized solar cell, as well as self-cleaning and transparent heating windows. This also include his research interest in the use of Indonesia natural-indigenous minerals and plantation as the potential resources/precursors for the above nanostructural applications. He was awarded as a full-professor at Department of Metallurgical and Materials Engineering Faculty of Engineering Universitas Indonesia in 2013, and furthermore he was assigned as Associate Dean for Research and Community Services at Faculty of Engineering Universitas Indonesia from 2014-2018. Having completed successfully his duty in dean's office, now he is continuing his service as Head of Department of Metallurgical and Materials Engineering Faculty of Engineering UI from 2018-2022.



Dr. Yudi Darma (Institut Teknologi Bandung - Indonesia)



Dr. Yudi Darma is an Associate Professor in Physics Department of Institut Teknologi Bandung (ITB), Indonesia. He completed his doctoral studies from Hiroshima University in the field of Quantum Matter and Integrated Devices in 2004. Before returning to ITB, He joined several research groups including as postdoctoral researcher at Research Center for Nanodevices and Systems, Hiroshima University Japan, then as Research Fellow at Photonic Lab. School of Physics at The University of New South Wales Sydney Australia as well as a Research Fellow at Singapore Synchrotron Light Source-National University of Singapore. He received some International and National awards including Indonesian Achievement Award for Science and Technology in 2007, Indonesian Science Institute Award for the best young researcher in Engineering and Technology in 2006, Solid State Devices and Material 2003 Award in Tokyo, President Hiroshima University 2004 Distinction Award in Hiroshima and Microprocesses and Nanotechnology 2002 Award in Tokyo.

Now, He serve as the head of Quantum Semiconductor and Device laboratory in Physics Department of ITB. His research focus is in the field of advanced materials for multifunctional devices applications. Additionally, in 2016-2018, He also serve as a vice president of the Indonesian Young Academy of Sciences (ALMI).

SCHEDULE OF ORAL PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Day 1: Tuesday, October 8, 2019

Symposia on Computational Materials, Modeling, and Simulation (CCM), Materials Processing and Characterization (MPC)

Keynote Speaker	Prof. Stefan Adams (National University of Singapore - Singapore)	High throughput prediction of ion transport across battery materials
Invited Speaker	Prof. Dr. Soo Wohn Lee (Korea)	Ni-Ceramics nanocomposite coatings by wet chemical processes
CCM 01	Fiqhri Heda Murdaka, Kohji Nakamura and Agustinus Agung Nugroho	Estimation of Muon Stop Site from Minimum Electric Potential Position in CoCr204 using Density Functional Theory
CCM 02	Deni Haryadi and Haris Rudianto	Molecular dynamics studies of the effects of copper on the mechanical properties of aluminum
MPC 01	Widyastuti Widyastuti, Faisal Fahmy Sulistya, Vania Mitha Pratiwi and Wikan Jatimurti	Design of Frangible Composite Production Process and Plant Layout with Powder Metallurgy Method and Capacity of 50.000.000 Rounds/Year
MPC 02	Sulaksana Permana, Rafdi Abdul Majid and Johny Wahyuadi Soedarsono	Hydrochloric Acid Leaching Approaches for Tantalum and Niobium Pentoxide Enrichment in 1st Tin Slag from Bangka Island
MPC 03	Retno Kusumaningrum, Faustina De Yesu Prisila Abi, Galuh Sukmarani, Alvin Muhammad Habieb, Fiqhi Fauzi, Wahyu Bambang Widayatno, Agus Sukarto Wismogroho, Muhamad Ikhlasul Amal, Nurul Taufiqu Rochman and Alfian Noviyanto	Shape modification of manganese oxide prepared by solvothermal: effect of precipitation agent
MPC 04	Kurniawan Eko Saputro, Puji Siswanti, Dwi Wahyu Nugroho, Radyum Ikono, Alfian Noviyanto and Nurul Taufiqu Rochman	Reactivating adsorption capacities of spent bleaching earth for using in crude palm oil industry
MPC 05	Nail Widya Satya, Winarto Winarto and Sunoto Mudiantoro	BOND STRENGTH, HARDNESS, AND MICROSTRUCTURE ANALYSIS OF STELLITE COATING APPLIED ON 410 STEEL SURFACE USING FLAME SPRAY, PLASMA SPRAY, AND HIGH VELOCITY OXYFUEL SPRAY PROCESS
MPC 06	Deni Haryadi and Haris Rudianto	Effects of Mg And Sn on The Microstructures and Mechanical Properties of Al-Si-Cu Alloy
MPC 07	Arif Hidayat, Winarto Winarto, Arif Junaidi and Sunoto Mudiantoro	Fracture Toughness and Microstructure of GMA Welded Plates of Aluminum Alloy 5083 Using Different Filler Wires and Heat Inputs
MPC 14	Wahidun Adam, Winarto Winarto and Sunoto Mudiantoro	Influence the Filler Metal Containing Zirconium on the Weld Metal Porosity of MIG Welded Aluminium Alloy 5083
MPC 15	Mukhtar Effendi, Imam Amarullah, Candra Kurniawan, Wahyu Tri Cahyanto and Wahyu Widanarto	Structural and Magnetic Properties Characterization of Lanthanum-Strontium-Natural Ferrites Synthesized by Modified Solid-State Reaction Method for the Microwave Absorber

Next page: List of Abstracts (13 abstracts)

High throughput prediction of ion transport across battery materials

Stefan ADAMS^{1*}

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ABSTRACT

The maturing Li-ion battery (LIB) obviously cannot offer the performance levels desired for key applications in e-mobility and sustainable grid support. One of the most promising approaches to enhance energy density and rate capability is to move back from LIBs to batteries that use Li or Na metal or their respective alloys as the negative electrode. This approach had been abandoned decades ago, when the available electrolytes that at that time were not stable enough in contact with metal anodes and could not prevent short-circuits by Li dendrites. In the longer run it appears natural to get rid of flammable liquid electrolytes altogether in order to enhance safety, cycle life, volumetric energy density as well as to reduce the need for enclosure of individual cells. Recent progress on individual solid electrolytes raises expectations that such high energy density alkali metal-based batteries should be within reach, yet it remains a key challenge to realize electrochemically stable electrolyte:electrode interfaces that ensure smooth charge transfer over a long cycle life despite volume changes of the active materials during cycling.

Major progress can be expected in this area from combining experimental operando characterisation technologies with computational approaches. Computational tools for high throughput systematic identification of favourable electrode: electrolyte combinations need to be both reliable and computationally inexpensive. Here the bond-valence site energy approach realised in our softBV[1] software gives fast access to relevant quantities such as migration barriers, dopant effects, attempt frequencies, interfacial energies, “ionic workfunction” across interfaces etc. The simplicity of the approach allows us to conduct static or dynamic analysis of complex local structure models of materials and interfaces factoring in structural information from DFT studies as well as diffraction data and local NMR or Raman probes. Transforming the wealth of experimental and computational data into progress towards optimised energy storage systems requires also a fresh look at established models of ion transport in disordered fast-ion conducting solids factoring in multiple ion transport networks (e.g. in Na₁₁Sn₂PS₁₂[2,3]; LiX-Li₃PS₄), occupancies exceeding nominal full occupancy on extended sites (e.g. in Na₃PS₄) etc. are to be incorporated. The most effective way to accelerate the development of high performance energy storage systems may be to set up a dedicated AI battery design system and feed it with dependable standardized data.

- [1] H. Chen, L.L. Wong, S. Adams. SoftBV—a software tool for screening the materials genome of inorganic fast ion conductors. *Acta Cryst. B*75 (2019) 18-33..
- [2] R. Prasada Rao et al; High throughput prediction of ion transport in battery materials Mechanochemical synthesis of fast sodium ion conductor Na₁₁Sn₂PSe₁₂ enables first sodium-selenium all-solid-state battery. *J. Mater Chem. A* 7 (2019) 20790-20798.
- [3] M. Duchardt et al.; Vacancy-Controlled Na⁺ Superion Conduction in Na₁₁Sn₂PS₁₂. *Angewandte Chemie International Edition* 57 (2018) 1351–1355

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Ni-Ceramics nanocomposite coatings by wet chemical processes

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Nickel-ceramics nanocomposite coatings can be applied to the wear resistance coatings, corrosion protection of underlying materials, and decorative coatings. As an alternative to the hard chrome coating, electro/electroless deposited Ni-ceramics composite coatings are emerging rapidly in recent years. However, more often agglomeration problem of the nanoparticles in the nickel matrix can cause deterioration of the mechanical properties rather than improvement. Hence, homogeneous distribution of the nanoparticles in the matrix coating is still challenging. In the present study, wet chemical depositions (electro/electroless deposition) of Ni-ceramics composite coatings were carried out as a part of surface treatments. The deposition was carried out under different conditions such as direct current, pulse current, autocatalytic, and ultrasonic aided electrodeposition techniques. The effects of different plating conditions on the nanoparticle co-deposition, dispersion into nickel matrix, microstructural evolution, mechanical, tribological and corrosion resistant properties of the coatings were observed and evaluated by SEM, TEM, XRD, Vickers microhardness, Wear and Friction tests, and electrochemical corrosion analysis. The microstructures of the nanoparticles reinforced composite coatings were changed allowing some less preferred orientations of the nickel crystallites and their growths, smooth surface, and finer grains compared to pure nickel deposit. Mechanical, tribological, and electrochemical corrosion resistant properties of the Ni-ceramics nanocomposite coatings were superior to that of pure Ni coating.

Keywords: Electrodeposition, Electroless, Ni-ceramics, Hardness, Tribology, Corrosion,

Estimation of Muon Stop Site from Minimum Electric Potential Position in CoCr_2O_4 using Density Functional Theory

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ABSTRACT

Spinel material Cobalt Chromite (CoCr_2O_4) is a ferrimagnetic material with T_C of about 93 K. This compound has attracted much attention due to the presence of electrical polarization which related to spiral magnetic transition at $T_S = 26$ K. This spiral magnetic transition phenomena could be explored by experiment using Muon Spin Rotation, Relaxation, and Resonance (μSR) in which muon plays a role as a local magnetic probe. Although μSR is powerful to describe a local magnetic structure, μSR cannot be standing alone due to the lack of information in where the muon might stop and decay to positron inside of the material. Theoretically, one knew that muon would prefer to stop in the minimum electric potential position inside of materials. For this purpose, Cobalt Chromite's potential minimum position has been determined by ab initio Density Functional Theory (DFT) based on Full-potential Linearized Augmented Plane Wave (FLAPW) calculation, and for the exchange-correlation part, GGA+U was used as an approximation. Twelve global potential positions have been found inside of Cobalt Chromite's conventional cell. From the visualization using potential isosurfaces of the resulted ab initio calculation, we also found that all of the potential minimum position was inside of minimum potential ring clusters located between neighboring Cobalt atom and possessed mirror symmetry at any diagonal plane in the Cobalt Chromite's conventional cell.

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Molecular dynamics studies of the effects of copper on the mechanical properties of aluminum

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ABSTRACT

In this paper, molecular dynamics (MD) simulations are performed to model the effects of copper composition on aluminum. Copper has a low solubility in aluminum, therefore The main purpose of this research is to study the influence of copper content (Cu) on mechanical properties behavior of the aluminum with simulation of nano indentation and uniaxial tension test. Mechanical properties behavior under different composition at the molecular level with composition varied from 0.5, 1, 3, 5, 8% and 10wt% Cu at temperature 300 K. The interactions between the atoms of Al and Cu are modelled using Embedded Atom Method (EAM) potentials. The result shows that aluminum with 1wt% Cu has the highest hardness value. Results from the molecular dynamics simulations are also compared with analytical results obtained from experimental studies.

Keyword : *Molecular dynamics (MD), mechanical properties, Copper, Aluminum Alloys*

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Design of Frangible Projectile Production Process and Plant Layout with Powder Metallurgy Method and Capacity of 50.000.000 Rounds/Year

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ABSTRACT

Frangible ammunition is an alternative ammunition that is developed by ITS and planned to scale up for mass production. In order to do that, a design is needed for its production process, specification and quantity of machine needed, also its plant layout. Process production target is 50.000.000 rounds/year, using powder metallurgy method that consists of mixing, compaction, sintering, finishing, quality control, and packaging. This planning results in variables and constants for each processes, plant layout, and the specifications with number of machine needed. In order to simulate those results, a model is made with Tecnomatix Plant Simulation software using inputs from processes variables and constants. The simulation result is a production process with a capacity of 50.037.120 rounds/year working for 365 days 3 hours and 15 minutes.

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Hydrochloric Acid Leaching Approaches for Tantalum and Niobium Pentoxide Enrichment in 1st Tin Slag from Bangka Island

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Abstract

1st tin slag (1TS) is a tin smelter by-product. This by-product contains valuable oxides, such as 0.30% tantalum (Ta₂O₅) and 0.58% niobium pentoxide (Nb₂O₅). The supply deficit of these minerals induces researchers worldwide to conduct investigations. This study explored the effect of roasting at 900°C, NaOH quenching, and HCl leaching with 45, 65, and 85°C temperature variables and 4M, 6M, 8M concentration variables. These measures were employed to upgrade the contents of tantalum and niobium pentoxide (TNP). The filtration products of quenching and leaching were characterized by X-Ray Fluorescence (XRF). On the one hand, 900°C roasting and NaOH quenching decreased the 100 mesh-measuring TNP contents, 0.14% Ta₂O₅ and 0.2% Nb₂O₅. On the other hand, HCl leaching with a 65°C temperature variable showed an optimal yield ratio of 3.75 Ta₂O₅ and 3.57 Nb₂O₅. The total yield ratio of TNP is 3.63.

Keywords: 1st tin slag, tantalum and niobium pentoxide, roasting, quenching, hydrochloric acid leaching

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Shape modification of manganese oxide prepared by solvothermal: effect of precipitation agent

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ABSTRACT

Nano-sized manganese oxide was synthesized by the solvothermal method. MnSO_4 was used as a precursor, which is obtained from the Sumbawa manganese ore. Two kinds of the precipitating agent, ammonium persulfate and sodium hydroxide, were used in this study and the effect on the solvothermal product were examined thoroughly. The solvothermal temperature and time were 120°C for 18 hours, respectively, for both precipitating agents. The results showed that the phase of manganese oxide was influenced by the precipitating agent, as indicated by X-ray diffraction analysis. MnO_2 was obtained from the reaction between MnSO_4 and ammonium persulfate, while Mn_3O_4 for the sodium hydroxide. One notable finding in this study is that the morphology of manganese oxide was also affected by the precipitating agent. For instance, the shape of MnO_2 and Mn_3O_4 was needle and sphere, respectively. Moreover, the average diameter of the needle was 60 ± 23 nm with a length of approximately 1 μm . On the other hand, the average particle size of Mn_3O_4 was 82 ± 16 nm. These results imply that variation of a precipitating agent is imperative to obtain the specific manganese oxide product, including the shape.

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Reactivating adsorption capacities of spent bleaching earth for using in crude palm oil industry

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ABSTRACT

Spent bleaching earth (SBE) was successfully regenerated by calcination and acid-activation process. The calcination process was performed at 500, 600 and 700°C for 2, 3 and 4 h. The results showed the SBE color restored at calcination temperature higher than 500°C, even though the decomposition of the volatile compound was removed at 680°C according to thermal gravimetric analysis. The clay structure was affected by the treatment and the impregnated organic matter was mostly removed. The primary phase of regenerated SBE is similar to virgin bleaching earth (VBE), implying the calcination and acid-activation is not alter the phase. Moreover, the adsorbent capacity of regenerated SBE was comparable with VBE, showing the regenerated SBE have promising potential for many applications, in particular for the crude palm oil industry. Regenerated SBE gave significantly larger specific surface area, microporous surface area and total pore volume with smaller the average pore diameter.

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BOND STRENGTH, HARDNESS, AND MICROSTRUCTURE ANALYSIS OF STELLITE COATING APPLIED ON 410 STEEL SURFACE USING FLAME SPRAY, PLASMA SPRAY, AND HIGH VELOCITY OXYFUEL SPRAY PROCESS

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ABSTRACT

This research is intended to compare properties of flame spray, plasma spray, and high velocity oxyfuel (HVOF) methods in depositing Stellite coating on 410 martensitic stainless steel. Plasma spray and HVOF coating show even deposition while flame spray coating not. Those three coatings meet manufacture minimum bond strength requirement. Highest average bond strength and hardness are got by HVOF process with a value of 33.1 MPa and 719 HV. According to bond strength and hardness standard deviation, the HVOF process gives the most homogeneous coating. Substrate hardness just below the coating interface after flame spray, plasma spray, and HVOF process are raised by 236%, 56%, and 65% each from the specification. HVOF coating has the best cross section compared to others. Smallest porosity percentage, porosity size, and average interface unbonding is got by the HVOF process, with a value of 0.2%, 7.2 μm , and 31% respectively. Coating microstructure after etching shows phases related to heat input during application. The dendritic structure is observed on flame spray and plasma spray coating after etching but not on HVOF process. Oxides and carbides of both cobalt and chrome are formed in the coating.

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Effects of Mg And Sn on The Microstructures and Mechanical Properties of Al-Si-Cu Alloy

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ABSTRACT

Aluminum alloys are commonly used in the automotive industry such as piston. The piston requires a material that can withstand the heat and high loading. Al-Si-Cu has low coefficient of thermal expansion and high mechanical properties. Mg and Sn were added to this alloy with intention to improve its mechanical properties. With addition of Mg and Sn, this alloy has potential to form strengthening precipitates. From XRD results, it was found that there are precipitates such as Mg-Sn, Mg-Si, Cu-Al and Cu-Sn systems. T6 heat treatment was carried out to investigate its effects on mechanical properties. It was found that higher concentration of Mg and Sn leading to better mechanical properties of this alloy. This is assumed that high concentration gives high percentage of precipitates formation which leads to better mechanical properties. SEM-EDS was carried out to characterize the materials before and after T6 heat treatment.

Keyword : *precipitation, Casting, mechanical properties, microstructure, Magnesium and Lead*

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Fracture Toughness and Microstructure of GMA Welded Plates of Aluminum Alloy 5083 Using Different Filler Wires and Heat Inputs

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ABSTRACT

Aluminum alloys AA5083 are alloys which mostly used in the hull components of the ship and high-speed craft. Commonly gas metal arc welding (GMAW) is used for joining the construction. Welding strength especially cracks toughness, is very important on this welding due to the regular operation of the ship or high-speed craft. The mechanical properties of weldments were most significantly affected by the filler metal composition. The heat input, as well as the weld cooling rates, have also influenced the strength and the hardness of Aluminum weldment. On this research welding of aluminum alloys AA5083 with dimension 150 mm x 350 mm and thickness 15 mm and 20 mm, were carried out by a gas metal arc welding using two difference filler metal ER5183 and ER5356, and 99% argon is used as shielding gas. Notch toughness and fracture characteristics of aluminum alloys and their welds were studied by measuring the notched and un-notched tensile properties. The result showed that the maximum fracture (crack) toughness was provided on the weld plates of 15mm thickness using filler metal ER5356 with the weld heat input of 7.8 kJ/cm.

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Influence the Filler Metal Containing Zirconium on the Weld Metal Porosity of the MIG Welded Aluminium Alloy 5083

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ABSTRACT

The aluminum alloy series 5083 has high corrosion resistance and high specific strength properties; hence, it is widely used for ship structures, marine component, cryogenics of LNG tanks, and unfired pressure vessels. This study was undertaken to investigate the effect of zirconium on weld metal porosity and hardness of MIG welded aluminum Alloy 5083. Zirconium is one of alloying elements which are mostly used for grain refining in the aluminum casting process. Zirconium element was previously added in the electrode wire as a filler metal. The experiments were carried out by MIG welding for several aluminum alloy plates to produce the full penetration weldments. Two different filler wires used in the welding: one is containing zirconium, and another is no containing zirconium. The grain size of weld microstructures was measured using a Linear Intercept Method (ASTM E 112), and the hardness measurement is conducted using micro-Vickers along the cross section of AA-5083 weldment. Results showed that the grain size of AA-5083 weldment using the filler metal containing zirconium was considerably finer size than that of using the filler metal without zirconium. Moreover, the hardness of AA-5083 weldment using the filler metal containing zirconium is generally higher than that of using the filler metal without zirconium.

Keywords : Aluminum Alloys 5083; Zirconium, Weld Metal Porosity, Grain Size, and Hardness.

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Structural and Magnetic Properties Characterization of Lanthanum-Strontium-Natural Ferrites Synthesized by Modified Solid-State Reaction Method for the Microwave Absorber

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ABSTRACT

Several studies have been carried out to obtain materials capable of absorbing microwave radiation resulting in electromagnetic interference. This study aims to determine the structural and magnetic properties characteristics of lanthanum-strontium-natural ferrites prepared using a modified solid-state reaction method for the microwave absorber. X-ray diffraction, a vibrating sample magnetometer, scanning electron microscopy, and a vector network analyzer were employed to study the structural, magnetic properties, surface morphology, and microwave absorption capability of the composites, respectively. The XRD pattern of the sample without Lanthanum exhibits the formation of a $\text{Sr}_3\text{Fe}_2\text{O}_7$ single phase. Further, a new phase of $(\text{LaSr}_3)\text{Fe}_3\text{O}_{9.52}$ aroused after the addition of La^{3+} . An enhancement of La^{3+} concentration caused a reduction of the saturation magnetization value and the microwave reflection loss of these strontium-ferrites.

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Symposia on Advanced Functional & Structural Materials (AFS), Polymer-, Bio- and Soft Materials (PBS)

Keynote Speaker	Prof. Dr. Taku Sato (Tohoku University – Japan)	Topological Magnetic Textures and Excitations
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AFS 03	Galuh Sukmarani, Alfian Noviyanto, Retno Kusumaningrum, Alvin Muhammad Habieb, Fiqhi Fauzi, Wahyu Bambang Widayatno, Agus Sukarto Wismogroho, Muhammad Ikhlasil Amal and Nurul Taufiqu Rochman	Densification of SiC from amorphous polysilazane with the addition of β -SiC powder as a filler prepared by hot pressing furnace
AFS 04	Alvin Muhammad Habieb, Fiqhi Fauzi, Alfian Noviyanto, Galuh Sukmarani, Retno Kusumaningrum, Wahyu Bambang Widayatno, Agus Sukarto Wismogroho, Muhamad Ikhlasil Amal and Nurul Taufiqu Rochman	The effect of mechanochemical on the formation of calcium titanate (CaTiO_3) prepared by high energy milling
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AFS 06	Haris Rudianto, Sang Sun Yang, Yong Jin Kim and Ivo Dlouhy	Effects of Chemical Compositions on Properties of Dual Composites Gas Atomized Al-Si and Al-Si-SiC Powder
AFS 07	Hizba Muhammad Sadida and Priyo Tri Iswanto	Effects of Pouring Temperature Variations on Fatigue Properties of Al-Cu Alloy after Remelting
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AFS 09	Priyo Tri Iswanto, Akhyar Akhyar, Hizba Muhammad Sadida and Arief Faqihudin	Distribution of Hardness, Surface Roughness and Wettability of AISI 316L Induced by Shot Peening with Different Duration and Shooting Distance
AFS 10	Aulia Rifada, Wafa Aufia, Bannan Muthi'Atul Af'Idah and Alfian Noviyanto	Effect of Nano Hydroxyapatite in toothpaste on controlling oral microbial viability
PBS 01	Tri Susanto, Popy Marlina and Hari Prasetya	Investigation on the effect of nitrile butadiene rubber/polyvinil chloride blends (70/30) blends on the thermal ageing properties of carbon black/ kaolin filled epoxidized natural rubber.

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Topological Magnetic Textures and Excitations

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ABSTRACT

Topological spin textures have attracted growing interest in the condensed matter physics community because of their topologically protected nature. One representative example of topological spin textures may be “magnetic skyrmion”, which is a swirling spin structure now confirmed in various chiral magnets, such as MnSi [1]. It has been known that flow of the magnetic skyrmions can be generated by the external electric current; a representative demonstration of this effect can be found in literature where a single skyrmion was shown to be dragged and skew scattered by the electric current [2]. In many real chiral magnets, however, skyrmions form a triangular lattice, and hence it is essential to elucidate how the skyrmion lattice deforms while flowing by the external electric current. Recently, we have performed small angle neutron scattering (SANS) experiment under electric current, and found that, indeed, the skyrmion lattice shows plastic deformation with the time scale of seconds, which is very large time scale as a magnetic system [3].

The other topic we would like to touch upon is the recent observation of topological magnetic excitations in the two-dimensional antiferromagnetic quantum spin dimer system $\text{Ba}_2\text{CuSi}_2\text{O}_6\text{Cl}_2$ [4]. The weakly-interacting antiferromagnetic dimer systems have propagating excitations called “triplons”, forming a dispersive band structure in the reciprocal lattice space. Our elaborate neutron inelastic scattering experiment on $\text{Ba}_2\text{CuSi}_2\text{O}_6\text{Cl}_2$ shows clear formation of an energy gap between the high-energy and low-energy triplon bands in the entire Brillouin zone. Detailed model analysis further indicates that the dimer spin Hamiltonian can be interpreted as the boson variant of the Su-Schrieffer-Heeger (SSH) model. Exactly in the same manner as the SSH model, nature of the high- and low-energy triplon bands is topologically different, and hence, a topologically protected edge state can form in this material.

This work has been performed under intensive collaborations with the authors of Refs. [3] and [4].

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Tuning of ZnO Thins Films Properties through Structural and Surface Modifications

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We study the effect of surface modification of ZnO thin films by controlling the post-annealing treatment. Our results show significant change in magnetics and optical properties of ZnO after surface and structural modification. For study of optical properties, ZnO thin films were initially grown pulsed laser deposition (PLD) having amorphous and crystalline structure those are intentionally grown at room temperature and 570 C, respectively. After H₂ annealing at 600 C, the amorphous film shows a dramatic change in the crystallinity and the film surface transforms to a multiple-stacked nanoporous, whereas crystalline film shows shallow cone-like hole as observed by scanning electron microscopy and X-ray diffraction. These structures give a different spectroscopic ellipsometry (SE) profile of Ψ and Δ where the amorphous film shows an intense fringe in the spectra compared to crystalline film. Interestingly, it is found that the structural evolution changes the dielectric function and the annealing treatment transforms the ZnO system to more transparent film. Furthermore, photoluminescence (PL) spectra confirm that the amorphous film exhibits the stronger green luminescence centered at 2.5 eV. This luminescence is related with the presence of oxygen vacancy (V_O), which acts as the mid-gap states below the first optical transition. Moreover, X-ray photoemission spectroscopy confirms that the enhancement of V_O is observed in amorphous thin films from 17.1% to 23.1%. Meanwhile, V_O in the crystalline film is slightly increased from 13.74% to 17.24%. Here, we propose the role of H₂ annealing in the surface modification of ZnO films leading to the electronic and optical transition mechanism. Our result is essential to improve the functionality of ZnO by surface modification for light-emitting device applications.

Aluminum Alloy Piston Fabrication Technology by Super Forging-KIRIU

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ABSTRACT

This study aims to produce a lighter and stronger piston, even in high compression and high engine speed condition. The piston is produced by a forging process with Al-Si raw material. In addition, the outer layer of the piston is covered by molybdenum with a coating process as nanotechnology to prevent the corrosion. Furthermore, the finishing is controlled by the programming system machine named CNC (Computerized Numerical Control). In addition to CNC, the automation system is carried out by the KIRIU machine which is also used in this study. KIRIU machines provide high accuracy and the actual production increases by 20% compared to CNC. The result of this study is Al-Si superforging piston which is processed using a KIRIU automation system with a coating finish.

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The Effect of Amorphous Polysilazane and Infiltration Method on The Densification of SiC_f/SiC Composites

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ABSTRACT

Amorphous polysilazane was used to infiltrate the SiC fabric followed by sintering to fabricate SiC_f/SiC composites. Amorphous polysilazane were obtained from the liquid polysilazane after curing and pyrolysis at 1000°C for 2 h in argon atmosphere. The particle size of amorphous polysilazane were decreased by means of beads mill for 1 h at 3000 rpm, so that the particle size of amorphous polysilazane was comparable with the sintering additives (Al₂O₃ and Y₂O₃). Two infiltration methods were used to infiltrate the SiC fabrics; electrophoretic infiltration and vacuum infiltration. Sintering of the SiC_f/SiC composites was done at 1750°C for 1 h in argon atmosphere under an applied pressure of 20 MPa using hot pressing furnace. The results showed that electrophoretic infiltration is better in term of density compared to vacuum infiltration. The relative density of electrophoretic infiltrated and vacuum infiltrated SiC_f/SiC composite was 90.9 and 81.6%, respectively. It was found that the dense structure only occurred in matrix area, while open pores is observed in the fiber area. Phase analysis showed the existence of β-SiC along with α-SiC and C, which indicates that amorphous polysilazane is an alternative as a precursor for SiC_f/SiC composites.

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Densification of SiC from amorphous polysilazane with the addition of β -SiC powder as a filler prepared by hot pressing furnace

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ABSTRACT

Dense silicon carbide (SiC) was successfully sintered from amorphous polysilazane using hot pressing at 1750°C for 1 hour under an applied pressure of 20 MPa in Ar atmosphere. The effect of β -SiC powder as a filler on the density, phase, microstructure and hardness were examined. Al_2O_3 and Y_2O_3 were used as sintering additives through the liquid phase sintering mechanism. The phase analysis showed the formation of SiC after sintering of amorphous polysilazane. However, α -SiC was a dominant phase and the amount of α -SiC decreased with the addition of β -SiC powder. The relative density of sintered SiC was obtained in range 99.6 – 99.7% regardless of the addition of β -SiC powder. Sintered SiC from amorphous polysilazane revealed significant shrinkage compared to sintered SiC from β -SiC powder, while the minimum shrinkage was achieved by the addition of 70% β -SiC into amorphous polysilazane. However, the hardness of sintered SiC did not correlate with the addition of β -SiC powder, with highest hardness of 26.4 GPa, which is SiC from solely β -SiC powder. This result indicates that amorphous polysilazane is an alternative precursor to fabricate dense SiC.

Keywords: β -SiC, amorphous polysilazane, hot pressing, density, shrinkage.

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The effect of mechanochemical on the formation of calcium titanate (CaTiO₃) prepared by high energy milling

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ABSTRACT

Single-phase calcium titanate (CaTiO₃) was successfully synthesized by mechanical milling and the solid-state reaction of CaCO₃ and TiO₂. The speed of high energy ball milling was 700 rpm with the ball and jar were made from stainless steel. The milling time and ball to powder ratio was 10 h and 50, respectively. After milling for 10 h, the mixed powder of CaCO₃ and TiO₂ experienced heavy milling, which is indicated by the average particle size before and after milling was > 1 µm and 85,56 ± 35,62 nm, respectively. Furthermore, the XRD pattern of milled powder revealed the disappearance of CaCO₃ peaks and a considerable reduction of TiO₂ peaks after milling for 10 h. However, the presence of CaTiO₃ peaks in the milled powder was noticeably detected in the XRD pattern, showing the mechanical alloying of CaCO₃ and TiO₂ occurred. The milled powder was calcined at 800, 900 and 1000°C for 2 h in air atmosphere. The results showed the formation of a single phase of CaTiO₃ after calcination at any temperatures. However, the samples indicated the presence of Fe₂O₃, which is from the milling media. The presence of impurities after milling is inevitable due to friction between ball and jar or ball and ball. Further study is needed to obtain the optimum condition of mechanical milling to minimize the contamination.

Keywords: Calcium titanate; mechanical milling; raw materials; calcination; impurities

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Surface Properties of Hydroxyapatite Coating on Titanium Substrate Fabricated by Electrophoretic Deposition from Ethanol-dimethylformamide Suspensions Before and After Heat Treatment

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ABSTRACT

Hydroxyapatite was successfully deposited on commercially pure titanium substrate by electrophoretic deposition. Hydroxyapatite powder were suspended in mixing ethanol and dimethylformamide. The amount of dimethylformamide were designed at 0, 5, 10, and 15% on 100 mL suspension. After deposition, the specimens were heated at 800° C for 120 minutes in an argon atmosphere. Surface morphology, composition, and phase of HAp coating before and after heat treatment were characterized by Scanning Electron Microscope, Fourier Transform Infrared, and X-ray Diffraction. It was found there is no composition and phase changing of deposited HAp after heat treatment. Heat treatment also persuades HAp deposited shrinkage and enhanced the size of pore. The deposit in the 15% DMF sample exhibited the best microstructural properties with unique grooved surface after heat treatment.

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Effects of Chemical Compositions on Properties of Dual Composites Gas Atomized Al-Si and Al-Si-SiC Powder

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ABSTRACT

PM Aluminum-Silicon alloys have been drawn interests to researchers and automotive industries due to their light weight properties, low coefficient of thermal expansion, and corrosion resistant. Premixed Al-14Si-2.5Cu-0.5Mg powder called Alumix 231 was used as matrix alloy and Al-9Si with 20% volume fraction of SiC(12 μ m) was used as a reinforcement alloy. Powders were mixed with several ratios. To make green materials, powders were compacted at 600 MPa by dual action press and followed by sintering under ultra high purity nitrogen gas. Alumix 231 showed good sinterability by reaching sintering density for 97% relative and decreased by increasing amount of SiC particles. Oxide layer and wettability between reinforcement and matrix alloys are the reason reducing on sintering density. Mechanical properties were investigated to observe the effects of mixing ratio. XRD and SEM-EDS were used to characterize the materials.

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Effects of Pouring Temperature Variations on Fatigue Properties of Al-Cu Alloy after Remelting

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ABSTRACT

The aim of this research is to observe the casting temperature variations effects on physical mechanical and fatigue properties of Al 2024 with different types of casting temperature. Three different pouring temperatures were used 688, 738, 788 °C, and the mold was preheated and kept constant at 220°C. The sample was heat-treated by T6 process at 530 °C for 2 hours continued by fast quenching into water at room temperature. Then, the sample cast was treated by artificial aging method with the temperature of 190 °C. The results show that at 688°C pouring temperature, it has the highest tensile test results than to other variations which is 138.37 MPa, and for the fatigue strength at more than 2×10^6 cycles is 62.3 MPa. It is shown that fatigue life of aluminum alloy 2024 can be improved by T6 heat treatment, in this study by artificial aging, and it indicates that the number of the fatigue strength depends on the number of the maximum tensile strength of the material because the increase in the maximum tensile strength will increase the fatigue strength.

Keywords: Al 2024, T6 heat treatment, fatigue properties, pouring temperature

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The Effect Of Sol-gel derived TiO_2 Crystalline Size to $\text{Li}_4\text{Ti}_5\text{O}_{12}$ Anode Performance in Lithium Ion Battery

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ABSTRACT

The emerging portable device and electrical vehicle require safe, portable, and high-power energy sources which may be supplied by Lithium Ion Battery (LIB). The currently available carbon anode in LIB's system possesses some safety issue such as volume expansion during lithiation/delithiation and formation of solid electrolyte Interphase (SEI) that can be harmful for battery. Accordingly, anode material $\text{Li}_4\text{Ti}_5\text{O}_{12}$ (LTO) shows a promising properties that may overcome safety problems caused by carbon anode. However, the low electronic and ionic conductivity are main bottleneck for its application. This research focuses on synthesizing LTO using nano TiO_2 synthesized through Sol-gel method. Moreover, the effect of anatase TiO_2 crystalline size will be discussed as well. Crystalline size of TiO_2 was tailored by varying calcination temperature at 300°C; 400°C; and 500°C and heated for 6 hours. The crystallite size calculated by debye-scherrer equation are 8,01 nm ; 13,82 nm; 27,01 nm, respectively. The best electrochemical properties was exhibited by LTO 300 which shows initial specific capacity and R_{ct} of 164 mAh g^{-1} ; 51,94 ohm.

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Distribution of Hardness, Surface Roughness and Wettability of AISI 316L Induced by Shot Peening with Different Duration and Shooting Distance

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ABSTRACT

This research is conducted to analyze the effect of shot peening on distribution of hardness, surface roughness, and wettability of AISI 316 L. The shot peening process was performed on the surface of a 316L stainless steel sample with a shooting duration of 2, 4, 15, and 30 minutes, using a 0.4 mm diameter steel ball with a hardness of 40-50 HRC, the pressure of compressor held constant at 8 bar with nozzle diameter 5 mm, and the distance between the nozzle and the surface of sample is 6 cm and 12 cm for each shooting duration. The results show that the shot peening can change the surface roughness. The closer the distance and the longer the duration of shot peening will make the surface roughness lower or smoother. Hardness distribution rate declines as the farther the distance from the surface of the shot peening. It was found that the shot peening process decreased the droplet contact angle from the original 92.42° for the non-treatment as the control sample, then decreased to 82.13° for the sample with a 6 cm shooting distance and dropped to 85.29° for the sample with distance shoot 12 cm.

Keywords: shot peening duration, shot peening distance, SS 316L, surface roughness, hardness, wettability.

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Effect of Nano Hydroxyapatite in toothpaste on controlling oral microbial viability

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Abstract

Nano-hydroxyapatite (nHAp) is considered one of the materials that have high biocompatibility for biomimetic material due to its chemical and morphological similarity with dental apatite. Additionally, it has been documented to possess antibacterial potentials. The present study was conducted to identify the relationship between oral microenvironment pH change and its role in the *Streptococcus mutans* viability, a common pathogen in the oral cavity. Change in pH is closely related to number of *Streptococcus mutans* as the main cariogenic organism and acid-producing bacteria. The study was carried out using 0.25%, 0.7%, and 1.5% concentration of HAp in toothpaste formulation and commercial toothpaste as control. Our studies showed that the most significant pH fall was observed in 1.5% and 0.7% nHAp group, which is 4.5. However, in 60 minutes, all nHAp groups were able to restore pH into neutral, especially in the 0.7% nHAp group, which reached a pH of 7. As a comparison, the commercial toothpaste only returned to 6 within 1 hour. The detailed data about microstructure and antibacterial activity will be presented.

Investigation on the effect of nitrile butadiene rubber/polyvinyl chloride blends (70/30) blends on the thermal ageing properties of carbon black/ kaolin filled epoxidized natural rubber.

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In order to improve oil resistance properties of natural rubber products for oil and gas application, the nitrile butadiene rubber/polyvinyl chloride blends (NBR/PVC) used to be added in rubber blends along with other polymers. However, it still has disadvantage such as low tensile properties and poor weather resistance. Thus, this research aims to study the effect of the NBR/PVC (70/30) addition into epoxidized natural rubber binary blends using carbon black/kaolin filler (40/30 phr). The effect of NBR/PVC was examined by varying the number 0; 5; 10; 15; 20; 25; 30 phr into epoxidized natural rubber compounding. The effect of thermal ageing properties was observed at hot air circulation 70 °C and 120 °C for 0, 24, 48, 72, 96 hours towards hardness, tensile strength, elongation at break and abrasion resistance. The results show that the higher NBR/PVC composition with ENR binary blends improve the hardness value of the vulcanizates, whereas at a certain composition the hardness remain stable. Conversely, the higher NBR/PVC composition gives a slightly negative effect on tensile strength, elongation at break and abrasion resistance of the NBR/PVC-ENR blends. It could be concluded that 10-20 phr of NBR/PVC (70:30) addition using CB/Caolin filler (40/30 phr) into ENR could improve physico-mechanical properties without decrease tensile properties. Furthermore, it is found that the initial hardness increases with the increasing aging time, while the tensile strength and elongation at break tends to decrease with the longer aging time up to 96 hours. Similarly, elongation at break as well as abrasion resistance experience the decreasing value due to the aging temperature at 70 °C and 120 °C. To sum up, it is inferred that thermal aging at those temperatures could possibly exacerbate the physical damage of the rubber vulcanizates.

Keywords: Thermal Ageing, Abrasion Resistance, NBR/PVC, Epoxidized natural rubber

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SCHEDULE OF ORAL PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Day 2: Wednesday, October 8, 2019

Symposia on Nuclear Science and Technology Applications (NST), Materials Processing and Characterization (MPC)

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MPC 10	Moh Toifur, Muthiah Lutfia Khansa and Azmi Khusnani	The Effect of Deposition Time on the Quality of Cu / Ni as a Low Temperature Sensor Resulted from Electroplating Assisted by a Transverse Magnetic Field
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Eco-Based Materials Design and Processes

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As the state owned university, Universitas Indonesia is expected to contribute significantly in terms of problem solving to what have been faced by Indonesia society and country. It is no doubt that several areas become the main concern including: New & Renewable Energy, Urban Planning & Transportation, Clean Water and & Food Resilience, Waste treatment & Environment Conservation, Health and Biomedical Applications, as well as Maritime. In line with this national issue, the central research focus of Faculty of Engineering Universitas Indonesia has been derived as *“Integrated Design in Urban Smart Eco-technology Based on Indigenous Knowledge Towards Innovative Products for Sustainable Human Life and Environment”*. Department of Metallurgical and Materials Engineering as part of this active faculty has stated its research core as ***“Eco-based Materials Design and Processes”***. In this talk, some progresses in the relevant research activities in our department are presented in order to provide the future possibility of development and collaboration.

Study of Dried and Calcinated Ceria Stabilized Zirconia Microspheres Morphology by Small-Angle X-Ray Scattering

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ABSTRACT

Ceria stabilized zirconia (CSZ) microspheres as nuclear reactor fuel surrogates were prepared by external gelation. There are two washing solution variation on the CSZ synthesis, i.e. isopropyl alcohol (IPA) and propylene glycol methyl ether (PGME). Each CSZ microspheres from both variation, were evaluated by small angle x-ray scattering (SAXS). The morphology of the CSZ microsphere after drying at 80°C and calcinations at 200°C were observed to understand the structural change in each step of the whole kernel synthesis process. It is observed that the nanostructure of the CSZ microsphere is formed larger aggregates after calcinations for both variations. Furthermore, the polydispersity of the nano-grain of the CSZ microsphere is decrease after calcinations. It is indicated that the temperature paly an important role in the interaction of the zirconium oxide and cerium.

Keywords : CSZ, SAXS, drying, calcinations, IPA, PGME

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Preparation and Structures of Carbon-Copper Oxide Nanofibers from Electrospun Polyacrylonitrile Composite

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ABSTRACT

Electrospun copper salt-polyacrylonitrile (PAN) nanofibers were used as a precursor to fabricate carbon-copper oxide nanofibers. In this study, copper salt-PAN was obtained using two different methods namely synthesis directly copper salt-PAN solution using electrospinning and immersion electrospun PAN in the copper salt solution. Those ways gave a distinct effect on carbon-copper oxide nanofibers obtained. The morphologies and structures of carbon-copper oxide nanofibers were observed by scanning electron microscopy (SEM), infrared spectrometer (IR) and X-ray diffraction (XRD).

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High Purity Biogenic Amorphous SiO₂ Derived from Rice husk Ash: Synthesis and Its Characterisation

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ABSTRACT

In this work a simple process for the production of high purity biogenic amorphous SiO₂ derived from rice husk ash have been demonstrated. Rice husk ash obtained from citric acid leaching of rice husk and heat treated at 700 °C for 6 h. Purification of SiO₂ from rice husk ash conducted by precipitation technique. The precipitated SiO₂ particles obtained were characterized by x-ray fluorescence (XRF) analysis, Fourier transform infrared (FTIR) spectroscopy, and x-ray diffraction analysis (XRD). The XRF result shows that the concentration of biogenic amorphous SiO₂ obtained is 99.25 %. The resulted silica was proved to be amorphous according to FTIR and XRD analysis.

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Study on Performance of Cu/Ni[1'–5'] Film as A Cryogenic Sensor Produced by Electroplating Assisted with Transverse Magnetic Field

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ABSTRACT

The performance of Cu/Ni thin film as a cryogenic sensor produced by electroplating in the various time assisted with 200G transversal magnetic field has been studied. Liquid nitrogen (LN2) was used as a low-temperature medium with temperatures was varied from 0C-200°C. Characterization was done involve sensor voltage range, response time, sensitivity, stability, and hysteresis losses. A TCA-BTA thermocouple -180°C - 1400°C was used as a temperature calibrator.

The results showed that all sensors were able to measure LN2 temperatures in the range of 20°C – -200°C exceeding the ability of the calibrator to measure up to -180°C. Each sensor has advantages, but the sensor resulted from 4 minutes deposition has better performance than other sensors in the largest output voltage range up of 0.52 mV and the most sensitive with level sensitivity as function of T is $\kappa(T) = -1.21-0.012T$. While the sensor resulted from 2 minutes deposition has the shortest response time with a time constant of $(3.66 \pm 0.06) \times 10^{-1} \text{min}^{-1}$ and the smallest hysteresis loss.

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Characteristics of Magnesium Composite Fabricated by Stir Casting Method with Variation of Volume Fraction B₄C Reinforce

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ABSTRACT

At present the development of magnesium composites is increasingly being carried out, this is due to the main advantages of magnesium which has the lowest density when compared with other metals so that it can save fuel use when applied as a constituent of an automotive product yet still has great mechanical properties. In this research, magnesium composite is fabricated by mixing magnesium as composite matrix and micro B₄C as reinforcement particle with the variation of the volume fraction 2, 4, 6, and 8 wt% with stir casting as fabrication methods. Compared to pure magnesium, the addition of B₄C particles into the magnesium matrix can improve the mechanical properties of the composite. The best mechanical properties of magnesium composite is shown by the addition 8 wt% B₄C particles. These values increase up to 72.8 HRH for the hardness value, 64.03 for the UTS, 0.11 J / mm² for the impact value and 0.0023 mm³/m of wear rate. Mechanical properties of magnesium composite are increased due to the increasing number of B₄C particles that added will make new interfaces which will block dislocation movement and dispersed B₄C particles will also act as load restraint elements. Composite characterization was also carried out by using SEM-EDS and XRD test to find out the compounds and phases formed from the fabricated composites then it was known that the possible compounds formed from the composites produced were MgB₂, MgO, B₄C, and Mg₂B₂O₅.

Keywords: *Magnesium composite, Micro B₄C, stir casting*

The Effect of Adding The Variation of Al_2O_3 Nano Reinforcement Volume Fraction to The Characteristics of Composite Mg-Al-5TiB/Nano Al_2O_3 Using The Stirring Casting

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ABSTRACT

High needs for light material with good mechanical characteristics makes magnesium and its alloys as an alternative choice because of magnesium's low density, 1,74 gr/cm³. However its use is limited by its low strength and ductility. In this experiment, a fabrication process of composite which is Mg-Al5TiB as Matrix with addition of Nano Al_2O_3 as reinforce with volume fraction variation of 0,10%; 0,15%; 0,20%; and 0,25% Vf with stir casting method. The results were characterized by its microstructure with OM and SEM, composition with OES and XRD, density and porosity test, also destructive test (tensile, impact, wear and hardness test). Composite with addition of 0,20 %Vf is chosen as optimum composite having UTS value of 46,1 MPa, 14% elongation, $0,3 \times 10^{-5}$ mm³/s wear rate, 0,06 J/mm² impact value, 40,1 HRH, 1,73 density value, and 1,94 % porosity. However, in addition of 0,25 %Vf resulted in high porosity of 9,37% caused by nano Al_2O_3 particle forming clustering (porosity is related to clustered particles) and inhibiting liquid metal moving rate. The addition of grain refiner makes solidification went faster and refined the grains.

Study of the Effect of Addition of VF% SiC to the Characteristics of Mg-Al-Sr / SiC Composites Using Stir Casting Method

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ABSTRACT

In this study a magnesium metal matrix composite fabrication process was carried out combined with Al-15Sr alloy which will create intermetallic phases of $Mg_{17}Al_{12}$ and $Mg_{58}Al_{38}Sr_4$. Reinforce material that is used for this study is SiC with a fixed amount of 2, 4, 6, 8 vf%. Stir casting is used as the fabrication method as it doesn't require much maintenance and relatively cheap. Argon is used as a shielding gas so oxidation does not occur to magnesium and prevent combustion. The composite is then casted into a SKD 61 metal mold and then cooled so it can be characterized by the various tests it will go through. SiC is added as the reinforcement material in hopes to increase the mechanical properties of the composite. This can be seen when the composite go through a number of testings, including microstructure analysis, SEM, XRD testing, and various mechanical tests. Through this procedure it is then concluded that composite with 6 vf% SiC is the optimum amount of reinforce material which results in UTS of 51,09 MPa, hardness of 73 HRH, impact strength of 0,0367 J/mm² and abrasion rate of $5,68 \times 10^{-3}$ mm³/m.

SCHEDULE OF ORAL PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Day 2: Wednesday, October 8, 2019

Symposia on Energy and Environment Materials (EEM)

Keynote Speaker	Dr. Alexey Gluchenkoy (Australian National University)	High capacity anode materials for metal-ion batteries and the application of transmission electron microscopy to the analysis of battery materials
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EEM 02	Teguh Yulius Surya Panca Putra, Yustinus Purwamargapratala, Agus Sudjatno, Wagiyo Honggowiranto, Sudaryanto Sudaryanto, Evvy Kartini, Nur Ika Puji Ayu, Yoshihisa Ishikawa, Shuki Torii, Masao Yonemura and Takashi Kamiyama	IN-SITU NEUTRON DIFFRACTION STUDY OF STRUCTURE AND PHASE EVOLUTION OF LITHIUM IRON PHOSPHATE BASED POUCH-TYPE CELL BATTERIES
EEM 03	Subhan Achmad, Bambang Priyono, Anne Zulfia, Heri Jodi and Winidias Chandra	Enhancing the Performance of Lithium Titanate Oxide doped by Zinc Oxide Nanorods as Half Cell Li-Ion Battery
EEM 04	Ratna Frida Susanti, Hans Kristianto, Arenst Andreas Arie and Hary Devianto	Porous Carbon derived from Salacca Peel synthesized under hydrothermal condition followed by microwave assisted chemical activation as lithium ion capacitor's electrode
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EEM 06	Tatun H Nufus, Sri Lestari and Andi Ulfiana	Magnetization of Biodiesel (Waste Cooking Oil) To Temperature And Pressure Combustion In Diesel Engine
EEM 07	Lukman Noerochim and Widyastuti Widyastuti	The Role of TiO ₂ Composition on Electrochemical Performance of Dual-Phase Li ₄ Ti ₅ O ₁₂ -TiO ₂ Micro Rod as Anode for Lithium-Ion Battery

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High capacity anode materials for metal-ion batteries and the application of transmission electron microscopy to the analysis of battery materials

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ABSTRACT

This presentation will consist of two parts. In the first section of the talk, high capacity anode materials for metal-ion (lithium, sodium and potassium) will be discussed, with the focus on materials that participate in the so called alloying-dealloying reaction mechanism. Examples and comparative analysis of tin (Sn), antimony (Sb) and black phosphorus (P) in battery cells with different chemistries will be presented. In the following section of the talk, applications of transmission electron microscopy (TEM) to the analysis of battery materials will be discussed. Relevant examples from the presenter's own work will be included. Finally, emerging projects (hybrid metal-ion capacitors, dual-ion batteries) pursued at ANU's Battery Storage and Grid Integration Program at ANU will be briefly outlined.

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Research and development of battery technology in Australia

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ABSTRACT

Batteries are the key to electrification, enabling portable devices and tools, as well as the next generation grid and electric vehicles. Among various types of batteries, lithium-ion technology is currently a winner that dominates many applications. In this talk, a basic principle of lithium-ion batteries (a rocking chair mechanism) will be outlined, and various aspects of lithium-related research and development in Australia will be discussed. At present, Australia is one of the largest suppliers of lithium-containing minerals, with lithium mining industry quickly developing. The country is also one of the global leaders in the uptake of battery installations for home storage and grid applications. Battery research is prominent in a number of universities in Australia. The Australian National University has recently established their Battery Storage and Grid Integration program that will be briefly discussed. Finally, the current research trends in next generation batteries will be outlined, including new advanced cell types (higher energy density Li-S cells) and sustainable batteries (sodium, potassium, dual-ion etc.).

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***IN-SITU* NEUTRON DIFFRACTION STUDY OF STRUCTURE AND PHASE EVOLUTION OF LITHIUM IRON PHOSPHATE BASED POUCH-TYPE CELL BATTERIES**

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ABSTRACT

In-situ neutron diffraction measurements in home-made lithium iron phosphate pouch-type cell batteries have been conducted under various current rate for study on simultaneous structural changes in the LiFePO₄ (LFP) and graphite electrodes. This measurement system provides information for reactions related to real battery operation conditions in order to clarify the structural changes of battery materials. Measurements data have been obtained and further analysis shows changes in structure and composition of electrode materials, and reaction mechanism during charge and discharge processes. The reversible transition of LiFePO₄ (LFP) and FePO₄ (FP) revealed as well as the formation of LiC_n during charge and discharge process. While in general no differences found related to different applied current rate, more detailed and precise investigation could be carried out when lower current rate was applied. The results also show the structural stability of the materials of our home-made cells.

Keywords: crystal structure, reaction mechanism, in-situ neutron diffraction, Li-ion batteries, graphite, lithium iron phosphate

Enhancing the Performance of Lithium Titanate Oxide doped by Zinc Oxide Nanorods as Half Cell Li-Ion Battery

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Abstract. The Lithium Titanate Oxide (LTO) is one of the promising anode materials for Li-ion Batteries, because of its good stability during the charge-discharge process. However, its low electrical conductivity greatly affects its rate performance, so it requires a lot of improvement to meet the ideal standards of electric vehicles. In this study, Zinc Oxide utilized as the doping element, and LTO were mixed using the High Energy Ball Milling to improve its performance as an anode of a Lithium-ion battery. The composites were characterized using Scanning Electron Microscopy, Electrochemical Impedance Spectroscopy, and the battery Performance test, including the Cyclic Voltammetry and lifetime test. ZnO Nanorods successfully synthesized through Chemical Batch Decomposition, identified by the presence of typical ZnO nanorods features, such as rice-like and flower-like ZnO nanorods. The addition of ZnO Nanorods up to 4 wt% has successfully reduced the resistivity of the battery. The Highest working potential of the battery was achieved by the battery with the anode of LTO with ZnO 7% content, however LTO anode battery has the highest charge as well as discharge capacity in comparison to LTO/ZnO anode battery.

Keywords: Lithium Titanate Oxide, Zinc Oxide, Nanorods, Anode, Battery performance.

Porous Carbon derived from Salacca Peel synthesized under hydrothermal condition followed by microwave assisted chemical activation as lithium ion capacitor's electrode

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ABSTRACT

Porous carbonaceous materials have been utilized in a wide variety of high-performance energy storage, i.e. as an electrode for batteries and supercapacitors. It has advantageous such as simple synthetic process and abundant raw material, excellent conductivity, outstanding physical and chemical stability in strong acid and base electrolyte etc. The waste biomass should be the best candidate for porous carbon in term of availability and price. In addition, it is also viewed as a veritable way of combating waste disposal problem in the agricultural industries. Salacca peel is a good candidate for biomass precursor since it is abundant in quantity and is not utilized properly. The hydrothermal condition (225 °C, 5 hr, 50 bar) was utilized to carbonized salacca peel into hydrochar in the presence and absence of ceria and citric acid catalyst. Hydrochar was activated using microwave assisted chemical activation with potassium hydroxide (KOH) as an activated agent. The obtained carbon materials were characterized using scanning electron microscope (SEM), Fourier Transform Infrared Spectroscopy (FTIR), Brunauer-Emmett-Teller (BET), XRD and the performance of the material in Li half-cell system was evaluated by cyclic voltammetry (CV), galvanostatic charge discharge (GCD) and Electrochemical Impedance Spectroscopy (EIS). The results show that BET surface area as well as specific capacitance of porous carbon synthesized in the presence of catalyst was much higher compare to that of commercial as well as without catalyst. In addition, ceria catalyst show better performance compare to citric acid.

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The effects of rice husk ashes filled recycled propylene composites towards physical, mechanical properties and its degradation characteristics.

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ABSTRACT

Plastic waste is dominated by 46% Low Density Polyethylene (LDPE) and High Density Polyethylene (HDPE). LDPE and HDPE plastic is persistent pollutant that is not biodegradable waste that harm the ecosystem. Recycled polyethylene utilizes as paving block for pavement or road construction. The agro-industrial waste of rice husk ashes (RHA) that contains highly silica (SiO₂) is potentially to be utilized as fillers for some composites application. This research aims to observe the effect of RHA filled recycled polyethylene composites and its degradation characteristics toward the physical properties. The research design was variation of RHA 0%; 5%; 10%; 15%; 20% weight, while the degradation duration was 30 days and 60 days. The recycled ethylene was smelted and mixed with the RHA at temperature 120 °C; and then pressed using hydraulic press. The results showed that the addition of RHA leads to increase the water absorption capacity, whereas it reduces the compressive strength. However, the RHA filler addition into composites has no significantly effects on thickness and physical appearance (cracking profile). The 60 days degradation at ambient temperature with the sun lighting has a slight effect on the decreasing of compressive strength, thickness, and physical appearance (small crack on the surface). Conversely, the longer degradation the higher water absorption capacity of the polyethylene filled RHA composites. To sum up, the RHA addition may be potentially used for non-reinforcing filler in recycled polyethylene products such as paving block for road construction application.

Keywords : compressive strength, water absorption, paving block, recycled polyethylene, rice husk ashes filler

Magnetization Of Biodiesel (Waste Cooking Oil) To Temperature And Pressure Combustion In Diesel Engine

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ABSTRACT

Research related to the provision of magnetic field strength in the flow of fuel that can cause more complete combustion has been reported by many researchers, most of these observations were carried out by measuring machine performance using a dynamometer. Given the dynamometer prices are very expensive then another way to prove the occurrence of complete combustion is through the combustion chamber indicator. The hypothesis is that the greater the magnetic field is passed by fuel, the more perfect the combustion is, the combustion chamber temperature also increases and thermal efficiency increases. In this study using experimental methods. The fuel used is biodiesel derived from used cooking oil, with a composition (B0, B20, B40, B70, B100). Measurement of combustion temperature is using type R temperature sensor, which is connected to the database and LabVIEW and read on the computer. The engine used is a diesel engine with a power of 13 HP, with variations in load of 4.45 and 10.37 HP. The magnetic field used is 1500 Gauss. The results obtained that there is an increase in temperature in the combustion chamber of the engine equipped with a magnet compared to a non-magnetic engine that is equal to 15%. And the most optimum fuel used is B10 which gives thermal efficiency increased by 9.2-18.3%.

The Role of TiO₂ Composition on Electrochemical Performance of Dual-Phase Li₄Ti₅O₁₂-TiO₂ Micro Rod as Anode for Lithium-Ion Battery

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ABSTRACT

In this study, the dual-phase Li₄Ti₅O₁₂-TiO₂ microrod was successfully prepared using a modified hydrothermal method followed by calcination process. The stoichiometry of LiOH was varied at mol ratio of 0.9, 1.1, and 1.3, to obtain the appropriate phase composition between TiO₂ and Li₄Ti₅O₁₂. The results show that, TiO₂ content has an important role in increasing the specific capacity of electrodes. In the SEM images, microrod morphology was formed after calcination with sizes in the range 142.34 - 260.62 nm for diameters and 5.03 - 7.37 μm for micro rod lengths. The 0.9 LiOH sample shows prominent electrochemical performance with the largest specific capacity of 120.53 mAh/g and 98.91% retention capacity achieved at a rate capability test of 5 C. This could be attributed to the appropriate amount of TiO₂ that induce the smaller crystallite size, higher grain boundary density, and lower charge transfer resistance enhancing Li ion insertion/extraction process and faster diffusion kinetics.

Keywords: Hydrothermal, Li₄Ti₅O₁₂-TiO₂, Micro rod, TiO₂, Lithium-ion Battery

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SCHEDULE OF POSTER PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Symposia on Energy and Environment Materials (EEM)

EEM P01	Indra Gunawan, Yustinus Pratala, Sudaryanto and Jadigia Ginting	Synthesis and Characterization of LiFePO ₄ /PPy/Clay Composite as Cathode Material for Li-Ion Battery
EEM P02	Pierre Wolter Winowatan, Anne Zulfia Syahrial and Achmad Subhan	Synthesis of TiO ₂ Polymorphs Using Sol-Gel Method to Enhance Electrochemical Performance of Lithium-ion Batteries
EEM P03	Deswita Deswita and Evi Yulianti	SYNTHESIS AND CHARACTERIZATION OF ANODA SHEET THE POLYVINYLIDENE FLUORIDE (PVDF) POLYMER COATED FOR LITHIUM BATTERY
EEM P04	Heri Jodi, Anne Zulfia, Deswita Deswita, Muhammad Fakhrudin and Evvy Kartini	The Enhancement of the conductivity of the 1.5Li ₂ O-P ₂ O ₅ Compounds By adding Montmorillonite clay For Solid Electrolytes
EEM P05	Evi Yulianti, Sudaryanto Sudaryanto and Deswita Deswita	Electrical Properties Studies of Solid Polymer Electrolyte based on PolyCaproLactone/LiCF ₃ SO ₃ Added Plastisizer
EEM P06	Yustinus Purwamargapratala, Tys Panca Putra and Agus Sujatno	PERFORMANCE OF THE LITHIUM TITANAT POUCH BATTERY WITH A VARIETY OF CATHODES
EEM P07	Sudaryanto Sudaryanto, Yustinus Purwamargapratala and Evi Yulianti	Electrochemical Impedance Spectroscopy Study of LiFePO ₄ /Li Half-Cell during Discharging Process
EEM P08	Wagiyo Honggowiranto, Evvy Kartini and Agus Sujatno	Assembly and Characterization of LiFePO ₄ -Graphite Pouch Cell
EEM P09	Evangelin Hutamaningtyas, Wagiyo Honggowiranto, Agus Sudjatno, Evvy Kartini and Heri Jodi	The Process for Recovering NMC Cathode Material From Spent Electric Vehicle Lithium-Ion Battery
EEM P10	Selly Pratiwi, Sovian Aritonang, Evvy Kartini, I Gusti Ketut Hans Desember, Ahmad Sazrhi and Hestu Nugroho	The Development of Solid Electrolyte for All-Solid-State Batteries: A Review

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Synthesis and Characterization of LiFePO₄/PPy/Clay Composite by Solution Method

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ABSTRACT

LiFePO₄/PPy/Clay composites is prepared by mixing LiFePO₄ and clay by solution method using Ppy. Conducting polymers have been utilized previously as conducting materials or carbon sources in various sol-gel and solid state methods to LiFePO₄. In this research paper, we report on an in-situ synthesis and characterization of LiFePO₄/PPy/ Clay composite electrode materials aiming to achieve homogenous microstructures and better battery behavior. The incorporation of LiFePO₄ with clay to form composites in order to achieve three dimensional porous LiFePO₄ architectures also to achieve fast electronic and ion conduction, while keeping an acceptable tap density. Considering simple carbon coating or additive is exclude to obtain perfect rate performance, an electrode consisting of carbon-coated, submicro-sized crystalline LiFePO₄ with 3D porosity is appealing since it can provide fast electronic conduction in the solid phase and ion conduction at reasonable rates in both solid and liquid phases. The SEM images of composites with different LiFePO₄ contents show the provide clear evidence that small crystal particles of LiFePO₄ either coat the surface of the clay particles or lie among them. Adding 25% PPy in the starting materials, an improvement in its practical capacity and rate capability. Increasing the PPy content to increase the conductivity of the material obtained.

Keywords : LiFePO₄, clay, composites, Li-Ion battery.

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Synthesis of TiO₂ Polymorphs Using Sol-Gel Method to Enhance Electrochemical Performance of Lithium-ion Batteries

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ABSTRACT

Titanium dioxide is a promising candidate to be used as anode material for lithium-ion batteries. It has some notable polymorphs such as rutile and anatase, etc. Although several studies revealed that one type of polymorph is better than other polymorphs, comparison between different polymorphs using same synthesis method is still unclear. This research discusses about electrochemical performance between 2 polymorphs of rutile and anatase synthesized by using sol-gel method followed by calcination process. The temperature for calcination process for rutile and anatase polymorphs are 480 °C for 8 hours and 850 °C for 6 hours respectively. The synthesis of both rutile and anatase polymorphs has been a success with high purity and no impurity peak shown by XRD result. In this research, a sample of commercial TiO₂ is used to make a coin cell battery to compare the performance between other samples. The electrochemical performances are examined by CV, CD and EIS.

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SYNTHESIS AND CHARACTERIZATION OF ANODA SHEET THE POLYVINYLDENE FLUORIDE (PVDF) POLYMER COATED FOR LITHIUM BATTERY

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ABSTRACT

SYNTHESIS AND CHARACTERIZATION OF ANODE SHEETS COATED BY POLYVINYLDENE FLUORIDE (PVDF) POLYMER FOR LITHIUM BATTERY. Anode sheet manufacturing for lithium batteries coated with Polyvinylidene fluoride polymer (PVDF) has been done. The anode sheet is made using a desktop bubble remover from graphite base material by varying the PVDF content of 10%, 15% and 20%, which is called as G1, G2 and G3 samples. The anode material from the mixture of graphite and PVDF is then coated again using PVDF polymer electrolyte with variations in content as much as 10%, 15% and 20, respectively called as GL1, GL2 and GL3 samples. Characterization of the anode product was measured using XRD diffraction, scanning electron microscope (SEM) equipped with energy dispersive spectroscopy (EDS). The conductivity of the anode sheet was measured using four point probe (FPP). The result shows that the PVDF polymer phase is only observed in GL1, GL2 and GL3 samples. The conductivity value (σ) of the anode sheet in the samples G1, G2 and G3 is obtained in the order of 10^{-3} to 10^{-2} slightly greater than that of the standard anode sheet ($\approx 10^{-3}$). The conductivity (σ) of the anode sheet tends to decrease with the addition of the PVDF polymer for the GL1, GL2 and GL3 samples to 10^{-4} . The maximum conductivity in this study was obtained in the G2 sample, with a PVDF polymer content of 15%. SEM / EDS observations show that the fluorine (F) element increases with the addition of the PVDF for GL2 sample.

Keywords: anode sheet, PVDF polymer, conductivity, lithium battery

The Enhancement of the conductivity of the $1.5\text{Li}_2\text{O}-\text{P}_2\text{O}_5$ Compounds By adding Montmorillonite clay For Solid Electrolytes

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ABSTRACT

The solid electrolyte is interesting because of its potential to be applied in a wide variety of electrochemical devices. However, most of solid electrolyte material has low enough conductivity to be applied to a device such as an electrolyte of a battery. The previous study has reported that the mixture of $1.5\text{Li}_2\text{O}-\text{P}_2\text{O}_5$ has a conductivity greater than the conductivity of Li_3PO_4 . In this study, Montmorillonite clay was added to the mixture of Li_2CO_3 and $\text{NH}_4\text{H}_2\text{PO}_4$ to make composite prepared by solid-state reaction. The composites were characterized using Scanning Electron Microscopy, and Electrochemical Impedance Spectroscopy, in order to investigate the morphology and electrochemical properties. The Micrographs showed that as the Montmorillonite content is added, the shape of glassy like flake is reduced, and the granular lumps are getting larger in size. The whole Nyquist plot consisted of only an imperfect semicircular arc, indicates the relaxation process in response to the bulk material. The conductivity of the mixture with MMT content up to 20 wt% were in the order of 10^{-4} S/cm which is higher than that of $\text{Li}_4\text{P}_2\text{O}_7$ and Li_3PO_4 . The slope of dielectric loss of the samples, indicates that the conduction in the samples was more predominantly dc conduction.

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Electrical Properties Studies of Solid Polymer Electrolyte based on PolyCaproLactone/LiCF₃SO₃ Added Plastisizer

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ABSTRACT

The electrical properties of solid polymer electrolyte based on biodegradable polymer PolyCaproLactone (PCL)/LiCF₃SO₃ with PC plastisizer addition have been studied. Polymer electrolyte membranes were prepared by solution casting technique by varying propylene carbonate (PC) composition (0-60) % weight. The membranes were characterized by the Electrical Impedance Spectroscopy at room temperature to measure its ionic conductivity and other electrical properties such as dielectric constant and tangent loss. The PCL/LiCF₃SO₃ system containing 20% weight PC plastisizer exhibits the highest conductivity of 4.92×10^{-4} S/cm at room temperature. The dielectric constant shows decreases with frequency increasing and it depends on dissociation of ions in the polymer electrolyte system. The tangent loss suggests that there are relaxing dipoles in the polymer electrolyte that shift toward higher frequency region. The membrane microstructure also investigated by XRD and the result showed that the PC plastisizer made the PCL/LiCF₃SO₃ system become more amorphous

Keywords : PCL/LiCF₃SO₃, polymer electrolyte, propylene carbonate (PC), electrical properties

COMPARATION OF CATHODE MATERIALS FOR LITHIUM TITANATE POUCH BATTERY

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ABSTRACT

Research and development of pouch battery material technology is very rapid in recent years, to choose battery materials that are easily obtainable, inexpensive, and have the properties as needed. This research is intended to compare the performance of the battery cathode material paired with a lithium lithium titanate battery anode. Battery samples were made by attaching lithium titanate as an anode with various cathode materials, namely: lithium manganese phosphate (LMP), lithium ferro phosphate (LFP), lithium cobalt oxide (LCO), lithium manganese oxide (LMO). Observations were made using a scanning electron microscope (SEM) to observe the morphology of the sample, X-ray diffraction (XRD) to observe the microstructure, LCR meter to measure conductivity and EIS. The results of observations and measurements show that the theoretical capacity of the batteries produced is as follows LMP-LTO: 27,3644 mAh, LFP-LTO 17,6959 mAh; LCO-LTO: 77,9806 mAh; and LMO-LTO 81,3705 mAh. LMP material conductivity: $3.6813 \times 10^{-5} \text{ S.cm}^{-1}$; LFP: $2.0859 \times 10^{-5} \text{ S.cm}^{-1}$, LCO: $2.9621 \times 10^{-5} \text{ S.cm}^{-1}$; LMO: $7.3131 \times 10^{-6} \text{ S.cm}^{-1}$, and LTO: $1.8897 \times 10^{-4} \text{ S.cm}^{-1}$ with average LMP particle size: 0.5 μm ; LFP: 1.45 μm ; LCO: 2.35 μm , and LMO: 3.85 μm . The observations using X-ray diffraction and analysis by highscore method showed that the LMP, LFP, LCO, LMO, and LTO sample materials were confirmed according to the standard.

Keywords: pouch batteries, lithium titanate, cathode

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Electrochemical Impedance Spectroscopy Study of LiFePO₄/Li Half-Cell during Discharging Process

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ABSTRACT

Electrochemical impedance spectroscopy (EIS) study has been applied to investigate the electrochemical properties of LiFePO₄/Li half-cell during discharging or lithiation process. The EIS measurements have been conducted at initial state of discharge (0%SOD), 25% SOD, 50% SOD, 75%SOD and 100%SOD of assembled coin cell batteries. The impedance spectra were collected from 42Hz to 1MHz. The EIS spectra of LiFePO₄/Li half-cell show the appearance of semicircles in which the diameter increased with SOD. An equivalent circuit was constructed to each spectrum in order to elucidate to electrochemical properties changes of LiFePO₄/Li half-cell battery as function of SOD. The information of bulk and interfacial resistances are obtained by modeling with the equivalent circuits according with the Nyquist plots of each spectrum. The experiment results show the increase in the resistance of LiFePO₄/Li half-cell with the SOD.

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Performance of LiFePO₄/Graphite Cylinder Pouch Cell

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ABSTRACT

A cylinder cell of lithium ion Battery with Al-pouch casing has been assembled at the Integrated Battery Laboratory, BATAN. Double sided coated LiFePO₄ on aluminum foil with 180 μm thickness was used as cathode sheet. The anode sheet was prepared from double sided coated artificial graphite on the copper foil with thickness of 197 μm . Both aluminum and copper foils are functioned as positive and negative current collectors, respectively. The composition, crystal structure, of coated LiFePO₄ was measured by an XRD. Battery cells are constructed by rolling thin layers of cathode, separator, and anode material to cylindrical shapes by using a winding machine. The cylindrical cell was inserted into aluminum pouch case then sealed at 175°C. The negative and positive connectors made from nickel and aluminum tab were welded on the top of aluminum and copper foil, respectively. The cylinder-pouchcell was put into Glove Box then filled with ~ 2.5 ml liquid electrolyte LiPF₆. A vacuum sealing machine was used to seal the rest of pouch case was set at 175°C. The performance of lithium ion battery were characterized by using Battery analyzer. The LiFePO₄ exhibited a discharge capacity of 250.00 mAh, with the specific capacity of 124.10 mA h g⁻¹ at the first cycle and 100.20 mA h g⁻¹ after 100th cycle, at the rate 0.3C. The cell showed good performance after 100 cycles with the retention of 80.74%.

Keywords : LiFePO₄; Graphite, Lithium ion batteries , cylinder cell, pouch cell

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The Process for Recovering NMC Cathode Material From Spent Electric Vehicle Lithium-Ion Battery

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ABSTRACT

Spent lithium-ion batteries (LIBs) has been widely recycled because of their importance related to environmental issues and limited resources. It is valuable to understand the effective process for recycling the batteries so the active material can be used directly to make new battery. This work aimed to recover the cathode material starting from discharging the battery until reusing it as active material in half-cell battery. The process was done by several steps such as discharging and dismantling the battery, separating the cathode materials from its current collector and assembling the half-cell battery. The XRD results from initial dismantling cathode show that the material is known to be LiNiMnCoO_2 . It is supported by the result from SEM-EDX which indicate the existences of Ni, Mn, Co. The peel-off efficiency of using NMP was also studied with the temperature of 70°C as relatively optimum result. Lastly, the cathode material from spent LIB is used to assemble the half-cell battery. It can be concluded that for making new battery from spent LIB, several processes are needed to have battery with better performance.

Keywords: Spent lithium ion battery, NMC cathode, LiNiMnCoO_2 battery

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The Development of Solid Electrolyte for All-Solid-State Batteries: A Review

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ABSTRACT

Lithium was developed as an energy storage because of various advantages it offers. The development of lithium batteries further increases the density of stored energy, the safety and the endurance in its life cycle. Among the development of a new generation energy storage, the development of all-solid-state batteries is one of the solution to improve batteries with higher safety, energy density and endurance in its life cycle. the development of all-solid-state batteries by converting liquid electrolytes to solid electrolytes has been carried out. Low conductivity of solid electrolytes is considered a challenge to produce all-solid-state batteries. This paper discusses an overview of the development for solid electrolytes with inorganic materials. The discussion includes the correlation between the material, composition, structure and conductivity of the solid electrolyte produced. Each material with a different composition has characterization and expected to increase the conductivity of solid electrolytes and can be used a method to improve the performance of lithium batteries with solid electrolytes (all-solid-state batteries).

Key word: Lithium Ion Battery, All-Solid-State Battery, Solid Electrolytes

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SCHEDULE OF POSTER PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Symposia on Materials Processing and Characterization (MPC)

MPC P01	Nanda Shabrina, Sumaryo Sumaryo, Bambang Sugeng, Diene Noor Haerani, Mardiyanto Mardiyanto and Abu Khalid Rivai	Preliminary Study of Zirconium Carbide Ceramic Deposition on Austenitic Stainless Steel by Pulsed Laser Deposition
MPC P02	Moh Toifur, Azmi Khusnani and Oki Mustava	Investigation on Performance of Cu/Ni Film as Low Temperature Sensor
MPC P03	Rakesh K M and Srinidhi R	A Study on Development of Acoustic Materials from Waste Fibres & Untraditional Materials
MPC P04	Rochman Rochiem, Alvian Toto Wibisono, Mavindra Ramadhani, Alvalo Toto Wibowo and Mohammad Miftachul Munir	The Effect of Polarities and Preheating Temperatures to Microstructures and Hardness in Overlay Hardfacing Processes of AISI 8655 Substrate/EF3 Filler Electrode
MPC P05	Anastasia Cinthya	Acoustic Analysis Of Characteristics Of Material Surface Absorption Panel Category From Banana Banana Bunches Which Can Be Applied As Interior Wall Coating
MPC P06	Haris Rudianto, Sergio Scudino and Ivo Dlouhy	Effects of Manufacturing Technique on Mechanical Properties of Graphene Reinforced Al-Zn-Cu-Mg Matrix Nanocomposite
MPC P07	Widi Astuti, Istihanah Eskani, Agus Haerudin, Fajar Nurjaman, Aulia Pertiwi Tri Yuda, Joni Setiawan and Dwi Lestari	Effect of Leaching Reagents on Synthesis of Zinc Oxide Nanoparticles from Electric Arc Furnace Dust (EAFD)
MPC P08	Yanurita Dwihapsari, Dinuhaa Hanaanul Hajidah, Randy Ivanal Hakim and Hendri Siswanto	Study of Agarose Phantom using Diffusion Weighted Imaging and Quantitative T2 Magnetic Resonance Imaging
MPC P09	Vania Mitha Pratiwi and Widyastuti Widyastuti	The Effect of Mg ²⁺ , Zn ²⁺ , and Y ³⁺ doped NASICON solid electrolyte of SOFC Applications

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Preliminary Study of Zirconium Carbide Ceramic Deposition on Austenitic Stainless Steel by Pulsed Laser Deposition

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ABSTRACT

Coating Zirconium Carbide (ZrC) on the stainless steel (SS) will increase the corrosion resistance of SS which suffer from the intergranular attacks during operation as construction materials in reactors. ZrC coating have been partially deposited on Austenitic 316L SS by Pulsed Laser Deposition (PLD) at 800oC temperature substrate with constant oxygen flow injection of 40 sccm (Standard Cubic Centimeters per Minute), chamber pressure around 229-244 mTorr and 105 the numbers of laser shots. The sample was analyzed using X-Ray Diffraction (XRD), Microscope Optic (MO), Scanning Electron Microscope – Energy Dispersive X-Ray Spectroscopy (SEM-EDS), and Atomic Force Microscope (AFM) to characterize the phase, morphology, thickness of the films and surface topography. The results showed that the thickness of the thin film around 4.93-8.10 μm with 49.6 nm surface roughness. The film surface was very smooth. The present of Zr and C was detected in SEM & EDS results but not appeared in XRD pattern, possibly due to diminish tension of the thin films on the substrates caused by low lattice mismatch between ZrC and Austenitic 316L SS substrate. Furthermore, ZrO_2 phase has been found on the substrate which is predicted because of the interaction between ZrC target and oxygen background gas.

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Investigation on Performance of Cu/Ni Film as Low Temperature Sensor

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ABSTRACT

We have investigated the effect of deposition time on the performance of Cu/Ni thin film as low temperature sensor. The sample was carried out by electroplating technique on various deposition times from 1–5 minutes. The liquid nitrogen was used as low temperature medium which the temperature was regulated from 0°C down to -200°C and vice versa. All Cu/Ni sensors perform a good response on the temperature change with variation of the output voltage range, time constants, sensitivity, and hysteresis losses. The Cu/Ni film produced during 1 minute deposition is the most sensitive sensor with sensitivity of (1.25 ± 0.01) mV/°C, but rather slow in responding temperature change and rather less stable voltage compared with the Cu/Ni film produced in 4 minutes deposition. Unfortunately, the 4 minutes sample is less sensitive in responding temperature change, that is (1.00 ± 0.01) mV/°C. We also found that all sensors have various hysteresis losses. The Cu/Ni film produced in 3 minutes deposition has the minimum hysteresis area that is (6.640 ± 0.005) V°C.

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A Study on Development of Acoustic Materials from Waste Fibres & Untraditional Materials

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ABSTRACT

Acoustical materials are extensively used in various forms like mats, curtains, blankets, panels etc., for noise control/reduction in offices, hospitals, schools to name a few applications. These acoustic materials were well known traditionally as synthetic based porous and resonant materials. However, these synthetic materials were found to have negative impact on environment in terms of emission of green house gases during manufacturing or burning, recyclability and biodegradability. Some researchers were successful in developing acoustical materials from natural fibre materials and its composites. But, these natural fibre based material have potential challenges like fire retardancy, moisture absorption, microbial growth etc., to mention a few. Thus, researcher are exploring for alternate materials to address these environmental issues, above mentioned potential challenges along with good acoustical properties. This study aims to discuss these pressing issues by focusing on the use of waste fibres like tea leaf fibre, betel-nut fibre, paddy waste fibres, luffa fibres and unconventional materials like chicken weather, recycled foam, sugarcane bagasse, Antiaris toxicaria - barkcloth and cellulose acetate material made from cigarette filters. We believe, there is no literature reviewing the effective utilisation of these waste fibres and materials for acoustical applications. Hence, this study assumes significance in encouraging researchers to develop a low cost and environmental friendly acoustical materials which would intern addresses waste management issues in the modern society.

Keywords: Acoustic materials, Noise control, Waste fibre based materials, Unconventional acoustic materials

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The Effect of Polarities and Preheating Temperatures to Microstructures and Hardness in Overlay Hardfacing Processes of AISI 8655 Substrate/EF₃ Filler Electrode

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ABSTRACT

Overlay hardfacing is one of surface engineering technique to improve wear resistance and hardness performances of AISI 8655 steel for high abrasive working condition. The purposes of this paper are to describe the effect of polarities and pre-heat temperatures to microstructures, distribution of hardness and wear resistance of hardfaced specimens. The pieces of AISI 8655 substrate were heated at 150°C, 200°C, 250°C and 300°C as variable of pre-heating parameters. Pre-heated substrates were coated by buffer layer E309. Hard layer of E Fe₃ was coated above buffer layer by welding technique with Direct Current Reverse Polarity (DCRP) and Direct Current Straight Polarity (DCSP) as parameters. Chemical compositions, microstructures, hardness and wear resistance were performed in this paper. From the wear resistance result, DCRP with pre-heat 150°C, 200°C, 250°C and 300°C has reduction of thickness 0.14 mm, 0.11 mm, 0.09 mm and 0.13 mm. Meanwhile, DCSP with pre-heat 150°C, 200°C, 250°C and 300°C has reduction of thickness 0.11 mm, 0.11 mm, 0.09 mm and 0.11 mm. The investigation also shows the different value of hardness with DCRP and DCSP method. The highest value of hardness shows in layer E Fe₃ with 555 HVN.

Keyword: Hardfacing; Polarities; Microstructures; Wear Resistance

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Acoustic Analysis Of Characteristics Of Material Surface Absorption Panel Category From Banana Bunches Which Can Be Applied As Interior Wall Coating

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ABSTRACT

This research is a follow-up study focusing on one material, namely from Banana Bunches. In previous studies, Banana Bunches were classified as materials included in the Absorption Panel category. Absorber panel is a material that can be applied to interior walls. To be used as an interior coating material, a module and experiment of various textures must also be made for the banana bunches mixture. The module to be made refers to the size of the ceramic in general, which is 30 cm x 30 cm. For comparison, a number of types of surfaces from banana bunches will be made such as a fairly rough surface (with a considerable texture) and a smooth surface (the texture of the banana bunches is crushed very smoothly). The method used is quantitative experimental research where the material must be tested.

In the results of these trials, banana bunch material can be used as an alternative absorb absorbent material and can be mass produced. While for the motives of the material, it is expected to be one of the added values in the aesthetics of the material. Various types of texture models can be utilized according to the acoustic needs of a space. In terms of the benefits produced, the thickness of the partition can be reduced by 50% from the size of the partition in general but with the same acoustic quality.

Keyword : Banana Bunches, Absorption Panel, Acoustic Interior Partition

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Effects of Manufacturing Technique on Mechanical Properties of Graphene Reinforced Al-Zn-Cu-Mg Matrix Nanocomposite

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ABSTRACT

Research on graphene reinforced aluminium matrix nanocomposite is growing rapidly with the expectation to increase mechanical properties of aluminum matrix. This research is mainly focused on how to disperse graphene on aluminum powder. Mechanical alloying with 10:1 ball to powder ratio was used to disperse graphene particles on aluminum powder for 10 hours under argon gas. Concentration of graphene was varied from 0.5 to 5wt%. Premix Al-5.5Zn-2.5Mg-0.5Cu was used as matrix. Hot compaction followed by hot extrusion was used for consolidation. It seems that agglomeration is still a problem of dispersion of carbon based materials reinforced metal matrix especially higher concentration of reinforcement particles. This agglomeration will lead to lower density of bulk aluminum. Aluminum carbide (Al₄C₃) was found as a result reaction between graphene and aluminum during consolidation. This compound has an important role as a bridge to transport tension from matrix to graphene which gave improved mechanical properties. Raman Spectroscopy, SEM-EDS and X-Ray Diffraction (XRD) were used to characterize this nanocomposite.

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Effect of Leaching Reagents on Synthesis of Zinc Oxide Nanoparticles from Electric Arc Furnace Dust (EAFD)

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ABSTRACT

EAF dust contains zinc with high levels that is above 50% which is very potential as a secondary source of zinc. Leaching and precipitation methods with pH adjustment can be used to recover zinc from EAF dust. Leaching reagents that are commonly used in metal recovery processes are acids both inorganic acids and organic acids. Each leaching reagent has different effectiveness. In this study, the effect of leaching reagents on zinc oxide synthesis products from EAF dust was studied under atmospheric conditions. The EAF dust used is from the stainless steel industry with 68% zinc content. The leaching reagents used are sulfuric acid, hydrochloric acid, acetic acid, citric acid and oxalic acid. Leaching was carried out at 80 C for 5 hours using 1 M reagent concentration and 10% pulp density. After the leaching process, the leaching filtrate is precipitated using NaOH up to pH 6. The precipitate formed at pH 6 is filtered and dried to obtain Zn(OH)₂. Furthermore, Zn(OH)₂ product is heated using a furnace at 600 C to obtain ZnO. From the experimental results it is known that, the filtrate leached using citric acid did not produce any precipitates during precipitation. While the precipitate produced from leachate filtrate using sulfuric acid and oxalic acid showed a reddish color. The best precipitation products are obtained from the leached filtrate using acetic acid and hydrochloric acid. The XRD analysis results of ZnO produced by leaching using acetic acid and hydrochloric acid also showed the presence of ZnO nanoparticle peaks with the resulting ZnO content more than 97%.

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Study of Agarose Phantom using Diffusion Weighted Imaging and Quantitative T₂ Magnetic Resonance Imaging

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ABSTRACT

The precise and accurate measurement of material properties are needed in the development of phantom for Quantitative Magnetic Resonance Imaging (MRI). Here the characteristics of phantom developed from agarose hydrogel were assessed using Diffusion Weighted Imaging and Quantitative T₂ MRI. Agarose phantom of various concentrations was scanned using 1.5 Tesla MRI to obtain diffusion properties and T₂-values. Apparent diffusion coefficient (ADC) was assessed using several b-values. Quantitative T₂ measurement was performed using T₂-Weighted Imaging sequence with variation of echo-time and repetition time. The results from this experiment were compared to ADC and T₂-values of human tissues or organs. It could be used as a standard for phantom development for tissue engineering and MRI calibration as well as standardization.

The Effect of Mg^{2+} , Zn^{2+} , and Y^{3+} doped NASICON solid electrolyte of SOFC Applications

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ABSTRACT

In this study, $\text{Na}_3\text{Zr}_{2-x}\text{Mg}_x\text{Si}_2\text{PO}_{12}$, $\text{Na}_3\text{Zr}_{2-x}\text{Zn}_x\text{Si}_2\text{PO}_{12-x}$ and $\text{Na}_3\text{Zr}_{2-x}\text{Y}_x\text{Si}_2\text{PO}_{12-0.5x}$ ceramics with $x = 0.1, 0.2, 0.3$ and 0.4 were sintered to explore the influence of the valence state and the content of dopants on the conductivity of NASICON solid electrolyte. Archimedes method, X-ray diffraction, scanning electron microcopy and complex impedance spectroscopy were used to characterize the sintered samples. Results show that the dopant with $+2$ oxidation state cations improves the bulk conductivity mainly due to the less electrostatic interactions between Zn^{2+} ion sand Na^+ ions. The optimal doping content of Mg^{2+} , Zn^{2+} and Y^{3+} doped NASICON ceramics is 0.1 mol and that of Zn^{2+} doped NASICON ceramic is 0.2 mol for the highest ionic conductivity. Among all the doped NASICON ceramics, $\text{Na}_3\text{Zr}_{1.8}\text{Zn}_{0.2}\text{Si}_2\text{PO}_{11.8}$ ceramic displays the highest total conductivity of 1.44×10^{-3} S/cm room temperature. Furthermore, doping strategy both increases the density and decreases the sintering temperature of $\text{Na}_3\text{Zr}_2\text{Si}_2\text{PO}_{12}$ ceramic.

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SCHEDULE OF POSTER PRESENTATION

International Conference on Advance Material Technology 2019 (ICAMT 2019)

Symposia on Nano Science and Technology (NNS)

NNS P01	Angga Khairul Fahmi, Haris Rudianto, Agus Sukarto Wismogroho, Lintang Dwi Kartika and Wahyu Bambang Widayatno	Sintering Behavior of Graphite Reinforced Al-Cu-Mg Matrix Nanocomposite Produced by Shaker Mill Technique
NNS P02	Umi Nur Sholikhah	Radioiodination Nano-Sized Ag/PVP for Nuclear-Based Theranostic Application
NNS P03	Arni Aries, Endang Sarmini, Ahid Nurmanjaya, Moch. Subechi, Umi Nur Solikhah, Enny Lestari, Sriyono Sriyono, Siska Febriana and Abidin Abidin	Method on Iodine-131 (¹³¹ I) Radiolabelling of Silver Nanoparticle (AgNPs) As A New Agent of Molecular Imaging

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Sintering Behavior of Graphite Reinforced Al-Cu-Mg Matrix Nanocomposite Produced by Shaker Mill Technique

Angga Khairul Fahmi¹⁾, Haris Rudianto^{1)*}, Lintang Dwi Kartika¹⁾, Agus Sukarto Wismogroho²⁾, Wahyu Bambang Widayatno²⁾

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ABSTRACT

Aluminum metal matrix nanocomposites have been extensively researched and developed for the aerospace and automotive fields. Graphite was used as particles reinforcement that has superior mechanical properties. Al-5.5Cu-2.5Mg was used as matrix in this research. To produce homogenized nanocomposites, shaker mill as carried out under argon gas. Shaker mill has some advantages compared to conventional ball mill. One of them are able to produce nanocomposites with shorter time. Evolution of powder morphology during shaker mill was investigated to obtain homogenized nanocomposites. Al₄C₃ was found as interface after shaker mill, this means that carbon structures on graphite has been damaged in order to make an interface with aluminum matrix. Sintering under argon gas was carried out to produce high density nanocomposites. And it was found that 580°C sintering temperature gave highest sintering density and mechanical properties. Materials characterizations for this nanocomposites were done using Particle Size Analyzer, DSC-TGA, XRD, and SEM-EDS.

Keyword : *Alumunium, Al4C3, Graphite, Nanocomposite, Shaker Mill, Sintering.*

Radioiodination Nano-Sized Ag/PVP for Nuclear-Based Theranostic Application

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ABSTRACT

Abstract. In the field of nuclear medicine, the development of various therapeutic and diagnostic methods based on radionuclides and nanoparticle are very rapid. Nano-sized Ag/PVP has special characteristic of enhanced permeability and retention effect. One of the radionuclides for therapy or diagnosis is iodine-131. This research aims to get the iodination technique through the oxidation, to study of pH adjustment technique, to determine optimum activity in radioiodination and its stability. In the radioiodination process, 5 mL chloramine-T was immobilized in glass sphere then incubated for 30 minutes. The glass spheres were separated then 1 mL of various activities of radioiodine was added. Radiochemical purity was measured by paper chromatography technique, using methanol 75% as mobile phase and Whatman 1 as the stationary phase. The result was characterized by using autoradiography scanner. The nano-sized Ag/PVP could be iodinated with radioactivity below 68.82 MBq using chloramine-T method at pH 7-11. The iodination resulted in the highest radiochemical purity of 95.2% at pH 11. The iodinated nano-sized Ag/PVP was stable up to 14 days. The phosphate buffer is the most efficient solution for pH adjustment. The highest activity of radiolabelling was 164.65 MBq.

Keywords : *radiochemical purity, autoradiography scanner, radiopharmaceutical, cancer*

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Iodogen Method on Iodine-131 (^{131}I) Radiolabelling of Silver Nanoparticle (AgNPs) As A New Agent of Molecular Imaging

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ABSTRACT

The application of nanomaterials in the treatment of various types of diseases continues to increase, including the use of silver nanoparticles (AgNPs). Research on labelling AgNPs using radioactive compound such as ^{131}I continues to increase. The aim of this study is to carry out a method on ^{131}I radiolabelling of AgNPs by using Iodogen as an iodination reagent. The radiolabelled ^{131}I -AgNPs were then purified by using Sephadex-25 column chromatography with 0,05 M phosphate buffer solution as mobile phase for the first purification and HEPES solution for the second purification. The radiochemical purity of radiolabelled ^{131}I -AgNPs was then determined by using autoradiography scanner. ^{131}I -AgNPs with a purity $94,5 \pm 0,2121\%$ were obtained after the purification. Stability test of the ^{131}I -AgNPs was carried out by determining the radiochemical purity of the ^{131}I -AgNPs on the first day until the fifth day of storage in the room temperature and refrigerator. Fraction 6 shows the best stability of the ^{131}I -AgNPs resulted in radiochemical purity $>90\%$ until the fourth day and $<90\%$ on the fifth and subsequent days in both storages. This result shows that storage in the refrigerator can be a better choice rather than in the room temperature.

Keywords: *Silver Nanopartikel, ^{131}I , ^{131}I -AgNPs, Iodogen, Labelled Compound, Autoradiography Scanner*

SCHEDULE OF ORAL PRESENTATION

International Conference On Multidisciplinary Research 2019 (ICMR 2019)

Day 1: Tuesday, October 8, 2019

Symposia on Economy Bussiness (EB)

Keynote Speaker	Prof. Dr. H. Wibowo, S.E., M.Phil (University of Prof. Dr. Moestopo (Beragama)) - Indonesia	
Invited Speaker	Komm Pechinthron (RMUTK) (Thailand)	
EB 01	Meiliyah Ariani, Zulhawati Zulhawati and Nirwan Mulyatno	Risk Base Capital, Investment Ratio, Claim Ratio, Ratio of Premium Growth and Increasing Insurance Premium Income
EB 02	Artha Sejati Ananda, Primidya Kartika Miranda Soesilo, Wenny Rukmana and Kartika Dewi Susanto	Fashion Opinion Leadership on Instagram and Its Relationships with Intention to Purchase and Adopt New Fashion
EB 03	Meiryani Nolasname, Fransiska Aninda Yuanita and Muhammad Heykal	Analysis The Influence of Cash Turnover and Receivables Turnover on Liquidity (Study on Manufacturing Company Sector Industrial Consumption Goods Listed in Indonesia Stock Exchange)
EB 04	Maria Pia Adiati, Agung Sanjaya and Indra Kusumawardhana	Budget Hotel in The Eyes of Millennial's: Case Study of Airy Rooms
EB 05	Jeremy A. Joewono and Tengku Mohammad Khairal Abdullah	Corporate Social Responsibility: A Revisit of the Theory
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The Influence of Risk Based Capital, Investment Ratio, Claim Ratio and Ratio of Premium Growth on Increasing Insurance Premium Income

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Abstract. This study aims to determine whether the risk-based capital, return on investment, the ratio of claims and the ratio of growth affect the increase in premium income on insurance companies listed on the Indonesia Stock Exchange 2013-2017.

This study has a sample size of 10 mining companies listed on the Indonesian stock exchanges from 2013-2017. The sample selection was done by purposive sampling method. The data used in this study is to use secondary data that is the financial statements published through the website www.idx.co.id. The analysis model used is multiple linear regression.

The results of this study indicate that the risk-based capital, return on investment, the ratio of claims and the ratio of premium growth as a whole (simultaneous) have a significant effect on the increase in premium income. Partially, this research indicates that risk-based capital and return on investment have negative and insignificant effect to the increase of premium income, whereas the ratio of claim and the ratio of premium growth have positive and significant effect to the increase of premium income.

Keywords: Increase premium income, risk-based capital, return on investment, ratio claim and ratio of growth.

Fashion Opinion Leadership on Instagram and Its Relationships with Intention to Purchase and Adopt New Fashion

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ABSTRACT

Fashion marketers in Indonesia have yet to comprehend the use of online influencers to utilize the influencers' opinion leadership. This research investigates the relationships between fashion online opinion leadership on Instagram and consumers' behavioral intentions, i.e. intention to adopt new fashion and purchase intention. Besides, it investigates whether consumers' perceived fit with personal interest strengthens the relationships between opinion leadership and behavioral intentions. This research employs a quantitative survey with 219 sample of Indonesian respondents who follow either influencers of traditional celebrities or the non-traditional celebrities. The unit of analysis consists of two Instagram communities, one includes the followers of the traditional celebrities and the other one includes the followers of the non-traditional celebrities. Data analysis uses PLS-SEM to test the established hypotheses. Results show that online opinion leadership has positive relationships with consumer's behavioral intentions. However, there is no significant effect of perceived interest of personal fit on the relationships between them. In addition, findings show that there are no significant differences in the resulting behavioral intentions between the followers of celebrities and non-traditional celebrities. This research provides scholars and practitioners further knowledge on the use of opinion leadership from different types of online influencers on social media.

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Analysis The Influence of Cash Turnover and Receivables Turnover on Liquidity (Study on Manufacturing Company Sector Industrial Consumption Goods Listed in Indonesia Stock Exchange)

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ABSTRACT

This research is using quantitative method. The data withdrawal techniques in this research are purposive sampling. The data are secondary data that are gained from the companies documentary that are already exist and making progress at this time. Research data are analized with multiple linear regression which are processed with Microsoft excel and SPSS 22. The result of this research show us that account receivables turnover doesn't effect the company liquidity data that are taken from 2016 to 2018 which are filtered in such way for the purpose of this research. It is caused by cash turnover in the company are no yet compatible with the recorded data of account receivable turnover. Meanwhile the cash turnover give positive effects towards the liquidity of consumption industry sector which are the Y variable. The bigger the cash turnover, will give the company more power to accomplish payment for short term debt which give us meaning that the company are liquid.

Keywords: Account Receivables Turnover, Cash Turnover, Liquidity

Budget Hotel in The Eyes of Millennials: Case Study of Airy Rooms

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ABSTRACT

Travel and tourism industry as the world's largest economic sector shake the hotel business since the growth of middle-class households and global consumer spending are rising. The impact appears in a budget hotel, particularly the demand for affordable accommodation that suits millennials. This study investigates the effect of Airy Room's brand awareness on millennials' purchase intention, thus aims to engage in the contemporary discussion on critical success factors (CSFs) in budget hotels' business model. Quantitative study and linear regression approaches were applied to produce the result. The study found a positive relationship between brand awareness towards the millennial's purchase intention. Whilst, the five dimensions of CFSs were also affected such as physical products, service quality, price, promotion, and location. The paper represents a framework thinking for budget hoteliers' practical strategies to increase its business model in the contemporary market.

Keywords: Budget hotel, millennial, brand awareness, purchase intention

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CORPORATE SOCIAL RESPONSIBILITY: A REVISIT OF THE THEORY

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Abstract. The field of Corporate Social Responsibility has been a debated subject since its inception in the early 1970s. There were a lot of arguments criticizing its role in serving the best interest of the shareholders, especially in the effort to increase the shareholders' value of business organization. This paper was written with the objective to review several underlying theories that explain the relationship between Corporate Social Responsibility and Business Strategy. Three main theories were explored, namely: the Instrumental Theory, the Ethical Theory and the Altruistic Theory of Corporate Social Responsibility. The underlying arguments proposed by each theories were explained and different approaches pursued by each theory is summarized. The better explanation that might relate the concept of Corporate Social Responsibility towards Business Strategy was perhaps covered by the Incremental Theory, as it argued that the CSR activities pursued by business organization was performed as an instrument to achieve specific goal of the company. Hence, the Instrumental Theory is assumed to be the most significant theory that relate the concept of CSR with business organization through its strategy.

Keywords : Corporate Social Responsibility, Business Strategy, Theory

The Effect of Auditor Competence, Professionalism, and Independence on Audit Quality

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ABSTRACT

In order to ensure that financial statement published in appropriate manner and free of material misstatement, financial statement must undergo audit from public accountant before being published. Public accountants have the obligation to maintain the quality of the audit they produce. There were several factors indicating audit quality, which is some of them determined by: competence, professionalism and independence. Therefore, the purpose of this study is to examine the effect of competencies, professionalism and auditor independence on audit quality. This is quantitative research which use primary data collection from questionnaire. The respondent of this research is auditors who worked at the Public Accounting Firm in Capital Special Region of Jakarta. Data analysis assisted by statistical software using ordinary least square analysis. The analysis included multiple linear regression using partial t test, simultaneous f test and determination of coefficient test. The results of this research indicate that all of the above factors: auditor competence, professionalism, and independence have a positive significant effect on audit quality.

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How Implementation of Enterprise Resource Planning System and Risk Management Impact on Information Quality?

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Abstract— Quality accounting information is useful for helping users to make useful decisions and support the decision-making process. In improving the quality of accounting information, enterprises resources planning and risk management are needed that will improve the quality of information. Quality information can help management in making decisions. The research problem examined is how much influence enterprises resources planning system and risk management on the quality of information and its impact on decision making. The purpose of this study is to find the truth through testing (confirmation) the influence of Enterprise Resource Planning System and Risk Management on the quality of information and its implications for decision making. The results of the study are expected to be proof that the model offered can be a problem solving solution to the quality of accounting information and decision making by management. The data used was obtained through a survey by distributing questionnaires to 48 commercial banks in Jakarta, processed statistically using PLS SEM. The research method uses explanatory research methods, to get a fundamental answer to cause and effect by analyzing the causes of problems in the quality of accounting information. The results of this study indicate that the problem of accounting quality that has not been qualified occurs because the enterprises resources planning system has not been easy to use and integration is less harmonious. Risk management has not optimally anticipated risks in the design and use of accounting information systems.

Index Terms— Enterprise Resource Planning System, Risk Management, Information Quality, Decision Making

Investigating the Impact of University Courses and Other Factors on the Likelihood of Becoming Entrepreneurs (A Case of Undergraduate Students in Metropolitan Jakarta)

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ABSTRACT

Indonesia faces the problem of imbalance between available job vacancies and job seekers. Indonesia also lacks entrepreneurs compared with elsewhere. Only 1.7 percent of the total population were entrepreneurs in 2017. Therefore, undergraduate students can help solve the problem by becoming entrepreneurs and providing job vacancies.

Their willingness to become entrepreneurs could be affected by the courses they take. This research was conducted as no previous research has been undertaken on which courses and other factors have an impact to motivate them to become entrepreneurs.

A qualitative method using semi-structured interviews was applied. Thirty interviews were conducted in three international universities, BINUS UNIVERSITY International, Universitas Indonesia International, and Trisakti International Business School. The data was transcribed, coded, and analyzed using thematic data analysis.

The results showed the students imagined themselves becoming entrepreneurs, especially in the food industry and e-commerce. They stated that entrepreneurship education was important and that other factor impacted the most was motivation, while the courses that impacted the most were international business, communication, economics, marketing, and design.

Keywords: Entrepreneurship, Metropolitan Jakarta, Motivation, Undergraduate Students, University Courses

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Digital Marketing Implementation to Smart City Application Users with TAM and UTAUT Models

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ABSTRACT

Smart City Mobile Apps is currently being developed by property developers in major cities in Indonesia and is used by businesses to market their products through the application. The method used to see how well the implementation of digital marketing in Smart City Mobile Apps is to combine the TAM (Technology Acceptance Model) and UTAUT (Unified Theory of Acceptance and Use of Technology) models. Questionnaire data were processed using the Structural Equation Modeling (SEM) method. The results of the study stated that the company's digital marketing strategy through Smart City Mobile Apps is already good where it can be seen from the value of adoption of Smart City Mobile Apps users in utilizing this application which is quite large at 0.73 based on the coefficient of determination. The variable that most influences consumers to use applications in finding trade information in the Smart City is the perceived usefulness variable with an influence value of 0.692 and the perceived variable of use with an influence value of 0.612. This shows that the ease of use of the application and the trust in the benefits of the application can encourage users to use this application for purchasing their daily needs.

keywords: *Smart City, Mobile Apps, TAM, UTAUT, Marketing Digital*

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THE INFLUENCE OF THE SHARE OF PUBLIC STOCK OWNERSHIP, AGE LISTINGS, CAPITAL STRUCTURE, THE SIZE OF THE KAP AND MANDATORY DISCLOSURE OF FINANCIAL PERFORMANCE AGAINST

**(Empirical study on corporate food and beverage manufacturing sector
registered in BEI in 2010-2014)**

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ABSTRACT

The purpose of this study was to analyze the influence of Portion of public stock ownership, age listings, capital structure, the size of the CAP and Mandatory Disclosure of financial Performance Against. The population used in this research is a company Manufacturing food and beverage Sector were listed on the Indonesia stock exchange in 2010-2014 a number of 14 companies. Samples taken by engineering judgement sampling and selected 11 companies. This study uses secondary data obtained from the financial reports published on the Indonesia stock exchange. Methods of analysis done by Multiple Linear regression analysis with the help of SPSS 13.0. The results of this research show that the age of listings, the size of the KAP and the Mandatory Disclosure partially effect significantly to financial performance while Serving the public stock ownership and capital structure partially do not affect significantly to financial performance.

Keywords: serves the public stock ownership, age listings, capital structure, the size of the KAP, the Mandatory Disclosure and financial performance

THE EFFECT OF MARKETING STRATEGY AND PRICE POLICY ON STUDENT DECISIONS TO CHOOSE PTS (CASE OF STIE BHAKTI DEVELOPMENT)

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ABSTRACT

This study aims to analyze the effect of Marketing Strategy and Price Policy on Student Decisions Choosing PTS (Case of STIE Bhakti Pembangunan). The data used in this study are quantitative data collected by giving questions or structured questionnaires (closed questionnaire). Hypothesis testing is done by using multiple linear regression analysis by first performing the characteristics of the correspondent, testing validity and reliability, normality test, multicollinearity, and heteroscedasticity, multiple regression test, multiple correlation analysis (R) and determination coefficient test (R^2), regression. The results of this study indicate that marketing strategies and pricing policies have a significant influence on students' decisions to choose PTS. Based on the t-test, the results of the partial regression coefficient test (t test) marketing strategy obtained t count marketing strategy variables of 3,203 and t table of 1,988. The value of t count > t table ($3.203 > 1.988$), then H_0 is rejected which means there is a significant influence between the marketing strategy on the decision of students to choose PTS on the campus of STIE Bhakti Pembangunan.

Keywords: Marketing Strategy, Price Policy and Decision of students to choose PTS.

THE EFFECT OF HUMAN RESOURCE DEVELOPMENT, ORGANIZATIONAL CULTURE, EMPLOYEE COMPETENCE, AND ORGANIZATIONAL COMMITMENT ON MANAGERIAL EFFECTIVENESS OF THE DIRECTORATE OF TEACHERS AND EDUCATION PERSONNEL MINISTRY OF EDUCATION AND CULTURE

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ABSTRACT

This causal research is aimed at finding the information concerning the possibility of managerial effectiveness affected by human resource development, organizational culture, employee competence, and organizational commitment. Survey method used in this research was data which had been analyzed by path analysis after all variables put into a correlation matrix. The data collected from 151 employees as the sample were selected by random sampling. The research result find out that: (1) human resource development has direct positive effect on managerial effectiveness, (2) organizational culture has direct positive effect on managerial effectiveness, (3) employee competence has direct positive effect on managerial effectiveness, (4) organizational commitment has direct positive effect on managerial effectiveness, (5) human resource development has direct positive effect on employee competence, (6) organizational culture has direct positive effect on employee competence, (7) human resource development has direct positive effect on organizational commitment, (8) organizational culture has direct positive effect on organizational commitment, and (9) human resource development has direct positive effect on organizational culture.

Key Words: Managerial Effectiveness, Human Resource Development, Organizational Culture, Employee Competence, and Organizational Commitment.

THE INTELLECTUAL CAPITAL EFFECT ON BANKING PERFORMANCE

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ABSTRACT

The principal purpose of this study are to analyze the impact of intellectual capital on banking performance with Cost to Asset (CTA) and Return on Asset (ROA) and analyze the impact of types of bank on banking performance with Cost to Asset (CTA) and Return on Asset (ROA). Data were drawn from 25 Indonesian banking sectors that listed in Indonesian Stock Exchange (IDX) for four years. The model to measure Intellectual Capital agregatly-using Value Added Intellectual Coefficient (VAIC) or separately-using Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), Capital Employed Efficiency (CEE) and GROUP. The result of this research show that: (1) VAIC has a negative effect to the CTA and has a positive effect to the ROA; (2) HCE has a negative effect to the CTA and doesn't have a positive effect to the ROA; (3) SCE has a negative effect to the CTA and has a positive effect to the ROA; (4) CEE doesn't have a negative effect to the CTA and doesn't have positive effect to the ROA; (5) GROUP doesn't have a positive and a negative effect to CTA and ROA.

Keywords: VAIC, GROUP, Cost to Asset (CTA) and Return on Asset (ROA).

Analysis of Factors Affecting the Internet Financial Reporting (IFR)

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Abstract

With rapid technology development and the increase of internet users in Indonesia, the companies must be able to deliver relevant and accessible financial information. Internet can be used as an alternative means in delivering financial information about the company. Thus, this research examined the factors affecting internet financial reporting (IFR) in non-primary and non-financial companies listed on Indonesia Stock Exchange for the year 2016. Data analysis method used multiple regression. The independent variables used are company size, profitability, liquidity, age of listing, public share ownership, and auditor reputation. The results of this research show that firm size and public ownership variables have significant effect, while profitability, liquidity, age of listing, and auditor reputation variables have no significant effect on internet financial reporting (IFR).

I am a politician, I sell hats. E-commerce strategy in political merchandise

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ABSTRACT

This study investigates the utility of official campaign websites for two candidates in USA presidential election in 2016. In this qualitative study, websites from Trump and Hillary presidential campaign are investigated in relation to e-commerce strategy. This strategy by politicians aiming to not only sell merchandise but also promote the political messages are recorded especially the usage of website features. Qualitative content analysis is used to identify merchandise websites of Hillary Clinton and Donald Trump from United States presidential electoral campaign. The websites are the sources of data in this study to be gathered, pinpointed and analysis to answer research questions. Apart from selling goods, all the e-commerce strategies such as design, execution and applying tailored messages into the websites deliberately aim to attract target audiences to the main websites and other official communication channel. In this early qualitative study, use of website as e-commerce media in selling political merchandise increase when people have easily access to the platform where they buy the products. Having a well-managed website may enhance awareness in their political and e-commerce side of the campaign.

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REDUCING THE DEFECT LEVEL OF SOFT TUBE PRODUCTION IN PT. ERA VARIASI INTERTIKA USING SIX SIGMA METHOD

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Abstract

The problem examined in this paper is the quality problem in the soft tube production process at PT. Era Variasi Intertika. This research is needed because the percentage of occurred defects is above the company's standard of reject. The purpose of this research is to know the level of sigma that has been achieved in the production of soft tube product, determine factors caused the defect of soft tube production, provide suggestions for improvements to reduce defective products, and estimate the sigma level that will be achieved by PT. Era Variasi Intertika in implementing the suggestions. The research method used was mix of qualitative and quantitative method. The data analysis method used is Six Sigma Method using DMAIC (Define – Measure – Analyze – Improve – Control) steps. From data analysis, the sigma level achieved by the company is 3.52. The main factors causing defects of soft tube production in PT. Era Variasi Intertika are problem of blanket printing, unclean production area, temperature of sealing machine which is not high enough, broken molding part in printing machine, careless employee, and machine error. The estimated sigma level that will be achieved by company when applying suggestions of improvement is 4.37. The defect will be reduced by 23.41%. Furthermore, doing these suggestions will decrease the risk of defect products that consumers will receive so the customer satisfaction will also increase.

Keywords

Six Sigma, DMAIC (Define – Measure – Analyze – Improve – Control), and Sigma Level

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When education is un-educative.

An explorative research on character-based education among net-generation.

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Abstract

Education is so said as one of the basic need of human being. The primary objective is for the personal and social existence and actualization as digitally world-wide citizen. The existence and actualization are either important or relevant to the presidential speech of encouraging superior human resources. Nicolaus Driyarkara and Ki Hajar Dewantara propose Indonesian cultural-friendly education paradigm; covering educational perspectives *of intellectual competence, physical ability, moral value, mental behaviour, cultural value and religiosity*. Dealing with the net-generation, Don Tapscott describes their characteristics comprehensively characterizing *freedom, speed, customization, innovation, integration, collaboration, entertainment, scrutiny*. This research is either quantitative or qualitative trying to explore on which education paradigm educators should deal with. The result of this research proposes that education on humanities is actually considered critical.

Keyword:

Cultural-friendly education paradigm

Comprehensive educational perspectives

The Heritage of Dodol Betawi: A Gastronomy Study

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ABSTRACT

As the heritage culinary of Betawi tribe, dodol Betawi also presents as cultural and representative gift item. Days ago, dodol Betawi alike with vanity since there were only a few wealthy people with higher social level who able to produce, serve and enjoy this type of item. In the modern time, dodol Betawi appears in the lens of Betawi's socio-cultural value to attract a wider market whether as a popular snack during Iedul Fitri seasons (Eid Mubarak), Betawinese housewarming or even serve as a wedding present. But it seems a broad spectrum of dodol Betawi item to reflective cooking and food preparation is overlooked, particularly to promote the item to the younger generation and face a sustainability issue. Altogether, action-research method and a quest for knowledge about reflective good eating in the conception, preparation, promotion, and presentation of dodol Betawi is conducted. The empirical analysis of gastronomy study against the heritage of dodol Betawi suggests the development framework towards a creative effort to produce well-presented production, packaging, and serving.

Key word: Dodol Betawi, Gastronomy, Food

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THE EFFECT OF FUND AGE, MARKET TIMING, INFLATION, AND RISK LEVEL OF
PERFORMANCE FROM ISLAMIC MUTUAL FUNDS IN INDONESIA

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ABSTRACT

This study aims to analyze the influence of fund age, market timing, inflation and the level of risk on the performance of Islamic equity mutual funds. Data used in this study is active Islamic equity mutual funds that in the period January 2013 to December 2017. Multiple regression analysis of panel data is used as a model of statistical equations. Analysis of the data using the classical assumption test. The hypothesis was tested using the t test, and adjusted R². Research results showed the fund age and inflation has negative and significant effect on the performance of sharia equity mutual funds, market timing has positive not significant effect on the performance of sharia equity mutual funds, level of risk has positive and significant effect on the performance of Islamic equity mutual funds.

Keywords: *Mutual fund performance, fund age, market timing, inflation, level of risk*

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Using Art to Foster Empathy: A Literature Review

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ABSTRACT

Historically, empathy is rooted in the domain of art, especially visual arts. The term “*Einfühlung*” (in-feeling) in German stemmed from the Greek word “*empathia*” (feeling with). However, its concept in art has shifted a few times since the 19th century definition, including its position from art appreciation to artmaking. Nowadays, some art practitioners in the art field and other related disciplines have claimed that art can be used to foster empathy. This papers investigates how the concept of empathy has been explored in recent literature and how it has been activated to foster empathy. It employs integrative literature review as its main method of data gathering and analysis. It has found a total of 180 literature, which is narrowed down to 27 relevant ones to be analyzed. This study found that there are three key moments in the conceptual shift of empathy in art. Moreover, it also underlines that art appreciation activity is still primary to artmaking in the effort to foster empathy.

Keywords: visual arts, empathy, literature review

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THE ISSUES OF ASYMMETRICAL DECENTRALIZATION IN INDONESIA: A CASE STUDY OF PAPUA

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ABSTRACT

This study focuses on the fundamental and strategic issues in the implementation of asymmetrical decentralization policy in Indonesia, particularly in Papua. The study starts from the main question: To what extent are the dynamics of the issues in implementing asymmetrical decentralization policy in Papua? Using soft system approach, this qualitative study is expected to provide a deeper understanding of the issues arising from the implementation of special autonomy policy in order to achieve the prosperity of the community of Papua. The implementation of asymmetrical decentralization is examined by referring to the model of Policy Implementation (Interpretation, Organization and Application). The findings of this study are: 1) The Government has not been committed to meet the demands of prosperity within the framework of special autonomy until 2011; unless an attempt is carried out in 2012 to 2014 2) There are varied perspectives on the relation of Governor, DPRD, DPRD and the Central Government, 3) Regulatory implementation and the delegation of authority regarding the utilization of Special Autonomy Fund have not been optimal, and 4) High fiscal dependency and limited other financial resources.

Keywords: Decentralization, Asymmetry, Regional Autonomy, Special Autonomy, Policy Implementation.

Komunikasi Budaya Masyarakat Sunda Pada Upacara Adat Seren Taun Di Cigugur, Kuningan – Jawa Barat - Indonesia

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ABSTRACT

Seren Taun can be equated with Thanks Giving Day, which is known in the West or harvest parties elsewhere in Indonesia. Seren Taun Customary Ceremony has various series of events that contain spiritual meaning and entertainment actions in the form of cultural arts such as, Pests Disposal Procession, Rice Mashing, Ngarajah, Ngareremokeun, Babarit. Seren Taun has also been a Calender of Tourism Event in West Java since 1976. The research is a study of communication ethnography that focuses its research on ritual events that contain transcendental communication meaning. The purpose of the Seren Taun Customary Ceremony is to: (1) Know the Communication Situation that occurs in the Seren Taun Customary Ceremony; (2) Knowing the Communication Events that occurred in Seren Taun Customary Ceremony; (3) Knowing Communication Acts that occur in Seren Taun Traditional Ceremony; and (4) cultural communication that occur in Seren Taun Traditional Ceremony. This research is a qualitative research and a constructivist paradigm using the theory of Symbolic Interactionism. Data collection techniques were carried out by means of in-depth interviews and overt and blind observations, document studies and literature studies. The results of this study refer to the Cigugur people's understanding of the cultural communication that occur in the Seren Taun Traditional Ceremony in Cigugur, Kuningan - West Java- Indonesia.

Keywords: Ethnography of Communication, Cultural Communication, Traditional Ceremony of Seren Taun

Symbolic Interactionism in Indonesian Early Age Marriage among Youth

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Abstract. Divorce in Indonesia is increasingly among young-age marriage. In Sanja village, marriage is considered a common thing for underage children which causes many children to drop out of school and even many whose lives are increasingly deprived. This research aims to find out the views of early marriage actors about marriage, and what exactly their motives for marrying in young age. This study uses marriage communication concept, the theory of symbolic interaction, and sexual fantasy, with a qualitative approach to the type of phenomenological study research. Data collection techniques are carried out by observation, in-depth interviews and document analysis. The results of the study indicate that the phenomenon of young marriage for marriage actors is defined as (1) an event that is positive, sacred, and does not violate the rules. (2) Action solutions to avoid undesirable things (3) Social status demands (4) solutions to solve the underlying problems. The relationship between the marriage person and the Sanja community is (1) Tend to be harmonious (2) Get a separate place in the heart of the community that is getting different treatment or appreciation than unmarried teenagers.

Keywords: Early age Marriage, Symbolic Interaction, Sex Fantasy

**EFEKTIVITAS PEMANFAATAN RUANG PUBLIK TERPADU
RAMAH ANAK (RPTRA) KENANGA DI KELURAHAN CIDENG
KECAMATAN GAMBIR KOTA ADMINISTRASI JAKARTA PUSAT**

-

**EFFECTIVENESS OF UTILIZING CHILDREN'S INTEGRATED
PUBLIC SPACE (RPTRA) KENANGA IN CIDENG REGENCY
GAMBIR SUBDISTRICT JAKARTA PUSAT ADMINISTRATION CITY**

T. Herry Rachmatsyah – Chicilia

ABSTRAK

Ruang Publik Terpadu Ramah Anak (RPTRA) sebagai salah satu pengembangan dari Kota Layak Anak menjadi strategi penting Pemerintah Provinsi DKI Jakarta dengan mengintegrasikan seluruh komitmen dan potensi sumber daya para pihak baik pemerintah, masyarakat maupun dunia usaha melalui sistem perencanaan yang komprehensif. Untuk mengetahui efektivitas pemanfaatan RPTRA Kenanga di Kelurahan Cideng digunakan ukuran efektivitas yang terdiri dari kejelasan tujuan yang hendak dicapai, kejelasan strategi pencapaian tujuan, proses analisis dan perumusan kebijakan, penyusunan program yang tepat, tersedianya sarana dan prasarana kerja, pelaksanaan yang efektif dan efisien dan sistem pengawasan dan pengendalian dengan indikator efektivitas yang terdiri atas pemahaman program, tepat sasaran, tercapainya tujuan dan perubahan nyata. Data dikumpulkan melalui pengamatan, tinjauan dokumen dan wawancara mendalam dengan informan yang terdiri atas Lurah Cideng, Pembinaan Kesejahteraan Keluarga (PKK) Provinsi DKI Jakarta, Konsultan RPTRA, Pengelola RPTRA Kenanga serta tokoh masyarakat. Penelitian ini menggunakan metode deskriptif kualitatif. Hasil penelitian ini menyimpulkan bahwa RPTRA Kenanga sudah cukup efektif dalam memenuhi indikator yang telah ditetapkan untuk mencapai Kota Jakarta sebagai Kota Layak Anak, namun dalam pelaksanaannya program yang dijalankan masih kurang melibatkan peran serta dari Komunitas masyarakat karena kegiatan yang dilaksanakan di RPTRA Kenanga masih berfokus pada kegiatan yang digerakkan oleh PKK Provinsi DKI Jakarta dan Dinas Pemberdayaan Perlindungan Anak dan Pengendalian Penduduk (PPAPP).

Kata Kunci: Efektivitas, Kota Layak Anak, RPTRA

ABSTRACT

Child Friendly Integrated Public Space (RPTRA) as one of the development of Child Friendly Cities is an important strategy of the DKI Jakarta Provincial Government by integrating all

commitments and potential resources of the parties both government, community and business world through a comprehensive planning system. To find out the effectiveness of the use of the Kenanga RPTRA in Cideng Regency, a measure of effectiveness consists of clarity of objectives to be achieved, clarity of strategies to achieve objectives, process of analysis and policy formulation, appropriate program preparation, availability of work facilities and infrastructure, effective and efficient implementation and system supervision and control with effectiveness indicators that consist of understanding the program, being right on target, achieving goals and real changes. Data is collected through observation, document review and in-depth interviews with informants consisting of Cideng Regency Chief, Family Welfare Development of DKI Jakarta Province, RPTRA Consultant, the Kenanga RPTRA Manager, and community leaders. This study used descriptive qualitative method. The results of this study conclude that the Kenanga RPTRA has been quite effective in meeting the indicators that have been set to reach Jakarta City as a Child-Friendly City, but the implementation of the program is still not involving the participation of the community because the activities carried out at the Kenanga RPTRA are still focused on activities driven by the Family Welfare Development of DKI Jakarta Province and the Child Protection Empowerment and Population Control Agency.

Keywords: Effectiveness, Child Friendly City, Child Friendly Integrated Public Space

**IMPLEMENTASI KEBIJAKAN PELAYANAN AIR BERSIH BERBASIS MANAJEMEN
PARTISIPATIF DI PERUSAHAAN UMUM DAERAH (PERUMDA) AIR MINUM
TIRTA MAKMUR KABUPATEN SUKOHARJO**

**POLICY IMPLEMENTATION IN WATER SERVICES BASED ON PARTICIPATION
MANAGEMENT AT TIRTA MAKMUR REGIONAL PUBLIC WATER COMPANY
IN SUKOHARJO REGENCY**

Harry Nenobais – Sarbini

ABSTRAK

Penelitian ini menganalisis faktor-faktor yang mempengaruhi implementasi kebijakan dalam pelayanan air bersih berbasis manajemen partisipatif terhadap masyarakat Sukoharjo. Penelitian ini dilakukan di Perusahaan Umum Daerah Air Minum Tirta Makmur Kabupaten Sukoharjo. Metode Penelitian yang digunakan adalah metode kualitatif dengan menggunakan teori implementasi kebijakan Donal Van Meter dan Carl Van Horn. Hasil Penelitian menyimpulkan bahwa faktor-faktor yang mempengaruhi implementasi kebijakan pelayanan air bersih berbasis manajemen partisipatif yang dilakukan Perusahaan Umum Daerah Air Minum Tirta Makmur Kabupaten Sukoharjo adalah tujuan kebijakan dan standar yang jelas, konsensus perubahan implementasi kebijakan, kapasitas sumber daya manusia organisasi pelaksana, pembiayaan, kualitas hubungan interorganisasional, lingkungan politik, sosial dan ekonomi yang sehat, dan manajemen partisipatif. Hasil penelitian ini menyarankan agar Dewan Perwakilan Rakyat Daerah, Pemerintah Kabupaten dan Manajemen Perusahaan Umum Daerah memiliki konsensus perubahan yang besar, partisipasi pemerintah dan masyarakat, investasi untuk perbaikan pelayanan, mempersiapkan sumber air baku.

Kata kunci: Konsensus Perubahan, Pembiayaan, Kapasitas Sumber Daya Manusia, Pelayanan Prima, Manajemen Partisipatif

ABSTRACT

This study analyzes the factors that influence the implementation of policies in clean water management based on participatory management of the Sukoharjo community. This research was conducted at the Tirta Makmur Regional Public Water Company in Sukoharjo Regency. The research method used is a qualitative method using the theory of implementation of the policies of Donald Van Meter and Carl Van Horn. The research results conclude that the factors that influence the implementation of clean water service policy based on participatory management by the Tirta Makmur Regional Public Water Company in Sukoharjo Regency are clear policy and standard objectives, consensus on changes in policy implementation, human resource capacity of implementing organizations, financing, the quality of interorganizational relations, a healthy political, social and economic environment, and participatory management. The results of this study suggest that the Regional House of Representatives, Regency Government, and Management of Regional Public Companies have a large consensus of change, government and community participation, investment in service improvement, preparing raw water sources.

Keywords: Consensus of Changes, Finance, Capacity of Human
Resources, Excellent Services, Participatory Management

Community Empowerment Through Clean Water Programs In Oefafi Village, Kupang, Nusa Tenggara Barat.

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Abstract

Oefafi Village is one of the dry villages in Indonesia, so that the community experiences water shortages. The unavailability of water causes the community to walk up to 1-2 km to get a water source. Many aid programs were received by the villagers of Oefafi but were unsuccessful, because they were not used maximally by the community and the level of community involvement was low. The Jaka Perkasa Citra Cemerlang Foundation (YJPCC) which is a non-profit organization is empowering the community through the clean water program in Oefafi Village. The research objective is to find out how YJPCC's communication strategy is in empowering the Oefafi village community through the clean water program and to find out the supporting factors as well as the inhibiting factors for implementing the community empowerment communication strategy. This research uses a qualitative approach with a case study method. The results showed the success of the Oefafi village community empowerment, that the empowerment carried out by YJPCC had shown active participation. The communication strategy carried out successfully fosters trust in the community so that people have an awareness and willingness to change, although there are some communities who refuse to be empowered, this is due to the nature of the community that is still closed and does not like to live in groups and actively.

Keywords: Community Empowerment, Clean Water Program, Oefafi Village.

**REBRANDING SEBAGAI STRATEGI KOMUNIKASI UNTUK
MENINGKATKAN PEMASARAN PRODUK KOPERASI USAHA
KECIL DAN MENENGAH (KUKM)
(STUDI KASUS GALERI INDONESIA WOW TAHUN
2015-2017) DI GEDUNG SMESCO INDONESIA**

YUNITA SARI - ALI

ABSTRAK

Pemerintah melalui Smesco Indonesia memberikan ruang besar bagi Koperasi dan Usaha Kecil dan Menengah (KUKM) dalam melakukan pemasaran di kancah Nasional maupun Internasional. Memiliki gedung di pusat Ibukota sebagai pusatnya para KUKM menampilkan produknya. Namun faktanya belum banyak orang mengetahui Smesco Indonesia sebagai pusatnya para KUKM seluruh Indonesia berkumpul. Langkah strategik melakukan Rebranding dengan membentuk Galery Indonesia Wow. Penelitian ini mempertanyakan bagaimana pembentukan Galery Indonesia Wow sebagai strategi rebranding dalam meningkatkan pemasaran produk KUKM di Gedung Smesco Indonesia. Dilakukan dengan pendekatan penelitian kualitatif dengan metode penelitian studi kasus, melalui observasi dan wawancara mendalam. Hasilnya Galeri Indonesia Wow belum dapat dikatakan rebranding Smesco Indonesia secara utuh, karena yang tergantikan hanya UKM Galery saja, sedangkan masih ada Paviliun Provinsi dan Rumah Desain sebagai layanan dari Smesco Indonesia ini, sehingga dibutuhkan strategi komunikasi yang lain.

Keyword : Rebranding, Strategi, Smesco Indonesia, Koperasi, UKM.

The establishment of Gallery Indonesia Wow as a rebranding strategy in improving cooperative and small and medium enterprises (CoSME's) products marketing in SMESCO Indonesia

Government through SMESCO Indonesia have a big space for Cooperatives and Small and Medium Enterprises (CoSME's) in marketing both nationally and internationally. We have a building in town to give SME's a place to showcase their products. In fact, not many people know that SMESCO Indonesia is a place for gathering SME's throughout Indonesia. The strategic step to do Rebranding is to establish Gallery Indonesia WOW. This research questioned how to establishment of Gallery Indonesia WOW as a rebranding strategy in improving the marketing of SME's products in SMESCO Indonesia. This research was conducted through qualitative approach with case study research method, observation and depth interview. The result is the Gallery of Indonesia WOW can't be said the rebranding from SMESCO Indonesia as a whole because only SME Gallery are replaced, while there is still have Provincial Pavilion and Design House as SMESCO Indonesia service, so still need other communications strategy.

Keyword : Rebranding, Strategy, SMESCO Indonesia, Cooperative,

Research Methodologies in Aesthetics and the Sciences of Art

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ABSTRACT

Aesthetics and Sciences of Art as disciplines are relatively new in Indonesia. It has primarily grown in institutions for Art Higher Education in the last two decades. World widely, the pinnacle of its development as an independent field is symbolized in the publication of 1978's UNESCO academic & cultural report titled "Main Trends of Research in the Social and Human Sciences", particularly its second chapter titled "Aesthetics and the Sciences of Art". It records UNESCO's first attempt to map various problems and developments on art research in First, Second, and Third World countries. This paper aims to trace the history of Aesthetics, differences between Aesthetics and aesthetic; and to map the development of concepts of Aesthetics and its characteristics, methodologies, scopes; and to compare and contrast Aesthetics with the sciences of art and its separate development. It employs specific research approaches and methods, which are Art Criticism and Art Anthropology. It is found that generally the "state of the art" in Indonesia has developed differently than how it is in the First and Second World countries. These differences, however, are quite similar to other Third World countries and highlight the needs for a comprehensive effort to map the history in a systematic way.

Keywords: Aesthetics, sciences of art, methodologies

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The role of Changing Identity of Central Javanese Costumes and *Lurik* Textiles Art in the Creative Industry

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ABSTRACT

Traditional costumes of a region and textile art from a particular area play a big role and important for the communities because they bring the impacts on the social, cultural, and economic. Textiles art is part of the identity in the community. Traditional costume is used to express belonging and exclusivity. This research focused on the Central Javanese traditional costumes which specifically using traditional *Lurik* textile art as one of the important heritages in Indonesia. Analyzing done on how the identity changed from their historical development and stylistic contexts in a period time until the current in the 21st century in Indonesia. The research focuses also on how *Lurik* relates to the culture, and other cultural influences observed through cultural changes. This research aims to preserve traditional costumes and support traditional textiles art as a sustainable way to improve the creative industry. The role of the changing identity of traditional costume and textile art influences the growth of the creative industries at the national level in Indonesia. Understanding the process of the changing identity is very important to promote and support the traditional textile and costume as a sustainable way to improve livelihoods.

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The Impact of Compensation and Motivation on Performance of Employees PT. Catur Partner Sejati Sentosa in Tangerang

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Gata⁴, and Nia Kusuma Wardhani⁵**

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ABSTRACT

The research was conducted to analyses the impact of compensation and motivation on employee performance. The population of this study is all employee, 250 people of PT. Catur Mitra Sejati Sentosa in Tangerang. The samples of this study were the employees of the company totaling of 154 respondents. Multiple regression analysis technique was used to analyze the impact of compensation and motivation on employee performance. The results of this research showed that compensation and motivation have a positive and significant impact on employee performance. This implies that the company should focus on improving compensation and motivation in order to increase the performance of employees.

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Effect of Scarcity Message on Online Impulsive Buying Decisions on Different Consumer Segmentation

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ABSTRACT

Current technological developments have expanded the freedom of consumers to choose products or services that are sold with the best deals and provide enormous benefits. For companies which run an online business, this somewhat became a complicated problem. Because it has increased broad freedom for consumers to switch brands effortlessly, so repurchase and customer loyalty becomes very difficult to obtain.

To avoid the brand switching behavior that is very easy for consumers, companies to encourage consumers to make impulsive buying decisions. Impulsive buying has considered necessary for the company because impulsive buying shortens the consumer purchasing decision-making process which will narrow the possibility of consumers switching brands.

This research examines promotional strategies in addition to discounts that can encourage consumers to make impulsive purchases, namely: scarcity message. Tests on the effect of scarcity messages are carried out on different segments, using multiple regression and cluster analysis methods on 215 respondents. The findings show that scarcity message has a positive influence on impulsive buying decisions on different segmentations, with the most substantial effect on segmentation in cluster 1.

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Turning Strawberry Jam into Slice Jam: An Organoleptic Study on Millennial and iGeneration Consumers

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ABSTRACT

The goal of this article is to discover an acceptance and preference of millennial and iGeneration consumer towards innovative products of strawberry sliced jam. While an ordinary fruit preserves often made as a jam. Sliced jam is a new way of fruit preservation to consume. Through an organoleptic study, the paper starts to examine and compare between an original product of strawberry jam to sliced jam. A quantitative tradition of research employs an experimental approach to eighty untrained respondents. Data analysis and validity were generated from SPSS statistic software to measure the result of questionnaires towards a favourite between the two and its characteristics such as texture, taste, smell, and colour. The findings reveal that the new form of strawberry jam slices is favoured among the major respondents. The strawberry jam slice's texture, taste, smell, and colour also attract the consumerism. Despite the limitation of the study, the article introduces a new way of consuming strawberry fruits preservation products. Thus, the research discussion would take forward business development idea, particularly on fruit preserves preparation.

Keywords: Strawberry jam, organoleptic, fruit preservation

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SCHEDULE OF ORAL PRESENTATION

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Symposia on Social and Humanities (SSH)

Keynote Speaker	Prof. M. Syafii Anwar (University of Prof. Dr. Moestopo (Beragama)) - Indonesia	
SSH 17	Raden Kusdiana, Vinsensius Ferdi, Indra Kusumawardhana and Farah Levyta	Hedonic Test of Kombucha Coffee
SSH 18	Amanda Prihutomo and Ratna Dewi Paramita	Designing Tradition into Global Market a Collaborative Fashion Project
SSH 19	Arsiyanti Lestari, Fitrie Handayani, Vivien Sylvina and David Mugti	Brand Positioning of Halal Tourism in Bukittinggi
SSH 20	Agus Masrukhin, Rusliansyah Anwar and Hari Sriyanto	Correlation Analysis Between Religious Morals of Students and Their Parents With The Practice of Religious Values
SSH 21	Radja Erland Hamzah, Citra Eka Putri and Prasetya Yoga Santoso	POPULAR Now: Convergence of Popular Magazine becomes a Digital Mobile Application
SSH 22	Taufiqurokhman Taufiqurokhman , Endang Sulastris, Andriansyah Andriansyah and Evi Satispi	Development of Child-Friendly City Policies in South Tangerang City
SSH 23	Almira Firmansyah	The Study of Soga Brown Colour Visual Digitization from Classical Batik of Yogyakarta

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Hedonic Test of Kombucha Coffee

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ABSTRACT

Kombucha is a fermented drink that has a health benefit property. Originally, kombucha made from a combination of sweetened tea that mixed with a symbiotic culture of bacteria and yeast to ferment. Moreover, the making of kombucha starts to vary through an infusion method such as herbs infusion, flowers or fruits, and vegetable mixture, and even to substitute with the coffee ground. Indonesia is the fifth largest consumer of coffee in the world. Therefore, this article aims to study an upcycling of leftover coffee grounds to produce kombucha. This form of fermentation method with inoculum Kombucha tea, which then known as Kombucha coffee (KC). The empiric study was conducted using a quantitative method, where a secondary data was supported with the primary result of questionnaires to eighty panelists. The findings of this research suggested that the aroma and taste of KC widely accept by the respondents. Additionally, KC's aroma, taste, and texture proved more hedonic value than tea kombucha. Although the study has a limitation such as time and the number of respondents. But, the result of the study stimulates a further discussion to investigate the significance of KC towards business and economic benefits.

Keywords: *Kombucha, Coffee Grounds, Fermentation, Hedonic Test*

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Designing Tradition into Global Market: a Collaborative Fashion Project

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ABSTRACT

This project aims to create collaboration opportunities between fashion designers and the craftsmen in in Gorontalo, North Sulawesi, Indonesia,. In this process, Sulam Karawo (Karawo Embroidery) from South Sulawesi have been developed into a new concept of contemporary design that suit the demand of global market. Through a series of collaborative workshops, the designers will use a skills sharing approach to introduce the narrative of design, incorporating many factors such as trend, design and usability through the adaptation of colour, motif and yarn type. To research on the project, monitoring and reflecting process has been taken throughout the stages of the collaboration. This study allows designer to contribute to the community as well as to help to grow the creative industry sector and functioned as a knowledge transmission of design skills in product development. Through the incorporation of minor changes to their creative process, the craftsmen will be developing textile products with an end-market in mind, facilitating a retail opportunity. The future impact of the project lies in the development of design and the process will help the craftsman to think beyond the creation of their product, ensuring that it meets the needs of a target market.

Keywords – Fashion, Craftsmen, Local Crafts, Karawo, Embroidery, Contemporary Design.

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Brand Positioning of Halal Tourism in Bukittinggi

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Abstract. Tourism is a very promising sector for the national economy. And halal tourism is a new phenomenon in the tourism industry to answer the needs of Muslim tourists. Halal tourism is seen as a new way to develop Indonesian tourism which upholds Islamic culture and values. The attractions, amenities, accessibility and ancillary components in each destination are scope of this study. This research aims to describe the potential brand positioning of halal tourism destinations in Bukittinggi in order to help determine the appropriate branding strategy in developing halal tourism according to the characteristics of each tourism destination in Bukittinggi in the near future. This research was conducted in a qualitative explanatory manner through in-depth interviews and non-participatory observation.

Keywords: Brand Positioning, Halal Tourism, Attractions, Amenity, Accessibility, Ancillary

Correlation analysis between religious morals of students and their parents with the practice of religious values

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ABSTRACT

Many students consider religion only a formality, they are not serious about practicing their religion. Even some of them claim to be atheist and agnostic even though their parents are religious. This condition becomes interesting to be investigated and found, whether the religious moral condition of parents gives an influence on the morale of students. The purpose of this study, is there a correlation between parents' religious morals on students, and what factors affect student morals. This study uses qualitative and quantitative methods (mix methods), In order to analyze the religious morals of students, use correlation theory and deductive thinking. It was also used multiple regression theory SPSS 16.0 to explain the effect of the research variables. The results showed that not all variables gave an influence on student behavior.

Password: Religious Morals, Students, Parents, Atheism

POPULAR Now Men's Magazine: Convergence of Popular Magazine becomes a Digital Mobile Application

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Abstract

Since entering the new millennium marked by the emergence of the Internet as a channel and communication medium that continues to grow until now, there has been a change in the habits of the audience in consuming information or news from conventional media towards digital media. Conventional media only has two choices, to be undermined by technological developments and to close down or join developments towards the advancement of time by converging into digital media. But in fact lately becoming a digital media is not enough to explore the existence of the media itself. Mobile digital applications are also used by many media circles to remain able to survive and compete in the media industry today. Popular Now is one of the startups of many digital mobile applications that are able to compete in the country's media industry. This application was first launched at the end of 2017 and has been downloaded by more than one hundred thousand users worldwide. This paper is a qualitative research with a case study research method where Popular men's magazine evolved from converged print media to become the first digital adult men's magazine in Indonesia and then penetrated again in the form of convergence of digital mobile startups that can be downloaded on every smartphone of its users.

Keywords: Convergence, Mobile digital media, Popular Now

Development of Child-Friendly City Policies in South Tangerang City

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Abstract: This study aims to determine the model of City Government Policy results in South Tangerang City to implement the Ministerial Regulation of the Women's Empowerment and Child Protection of the Republic of Indonesia Number 11 of 2011, regarding the Child Friendly City Development Policy (Eligible City of Children) using qualitative approach **research methods. descriptive**. That is to explain phenomena in depth through data collection. This type of research provides an overview, an accurate explanation objectively about the actual state of the object under study. Desant research in research writing uses the theory of public policy making according to Metter and Horn. **The results** of the South Tangerang Eligible City of Children development research generally went well. Among them; achievement of basic health and welfare, the large number of breastfeeding facilities and breastfeeding corners, high percentage of complete basic immunizations for children, low prevalence of malnutrition in children under five, low infant mortality rate, as well as active and outstanding Adolescent Reproductive Health Counseling Information Center.

Key Word: *Policy Development, Eligible City of Children in South Tangerang City*

The Study of *Soga* Brown Colour Identification from Classical Batik of Yogyakarta

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ABSTRACT

Indonesian traditional textile has distinct signature textile culture on its natural dye, for example Classical Batik of Yogyakarta which is well known for its brown *soga* colour, a brownish colour obtained from the colourants combination of *jambal* bark (*Pelthophorum ferrugineum*), *tingi* bark (*Ceriops candolleana*), and *tegeran* wood (*Cudrania javanensis*). Along with those ingredients, Classical Batik of Yogyakarta also uses indigo plant (*Indigofera tinctoria*) as its blue colourant to help create darker brown colour, and *kapur tohor* (Calcium Oxide) for pre and post mordant treatment. The colour study output would be a recommendation as it would be a non-analog inventory documentation of Classical Batik of Yogyakarta natural dye. In order to make the colour visual data suitable for digital device, the research requires fabrics dyed with Classical Batik of Yogyakarta natural dye ingredients and technique as samples for colour identification study by spectrophotometry and by digitalization method to obtain RGB colour value. The natural dye colour digital format data is designed to facilitate data preservation and its acquisition by individuals whom have interest on textile natural dye.

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SCHEDULE OF ORAL PRESENTATION

International Conference On Multidiciplinary Research 2019 (ICMR 2019)

Day 2: Wednesday, October 9, 2019

Symposia on IT & Communication (ITC)

Keynote Speaker	Prof. Dr. Rudy Harjanto, M.Sn (University of Prof. Dr. Moestopo (Beragama)) - Indonesia	
ITC 01	Kurnia Setiawan	Creative Innovation for Learning Pancasila with Snakes and Ladders Game
ITC 02	Ira Adriati and Irma Damajanti	Collector Contribution for Developing Art Museum in Indonesia 2010 - 2018
ITC 03	Viany Utami Tjhin and Setiani Putri Hendratno	Exploring the Player Intention to Pay on Multiplayer Online Mobile Games
ITC 04	Medo Maulianza, Arleen Ariestyani, Riana Jogi Ahdareni and Limia Aprilianti	Media Convergence Strategy on Metro TV (Optimizing the Use of New Media in the OPSI Program)
ITC 05	Samuel Mahatmaputra Tedjojuwono, Nathalia Devina Widjaja and Antonius Kurniawan	Vehicle Identification Systems using Virtual Line Sensors and Speed Up Robust Features
ITC 06	Yulianne Safitri, Amia Luthfia and Sari Ramadanty	Social Media Influencer Credibility and Social Influence on Intention to Use Fintech Service in Indonesia
ITC 07	Michael Siek and Ryan Malik Gunadharma Mukti	Correlation Analysis Between Religious Morals of Students and Their Parents With The Practice of Religious Values

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Creative Innovation for Better Indonesia, Designing Pancasila Snakes and Ladders Game

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ABSTRACT

Snakes and ladders game was originally from India by the name Moksha Patam/ Gyan Chauper (game of wisdom). The ladders represented virtues and the snakes represented evil. The ideals of the game inspired a version introduced in Victorian England, interpreted and used as a tool for teaching the effects of good deeds versus bad. At the present moment, snakes and ladders game is used for teaching young children about various subjects in English, America, Indonesia, etc. The researcher has an idea to design Pancasila Snakes and Ladders Game to be used as a learning media for students to learn about Pancasila. This research is an embodiment of visual communication design. It is a multidisciplinary study, combining the fields of design and educational psychology. The research methods used design thinking process; empathy – define – ideate – prototype – test. The output of the research was prototype Pancasila Snakes and Ladders Game. The prototype has been developed and tested in several schools and had positive responses.

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Collector Contribution for Developing Art Museum in Indonesia 2010 - 2018

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ABSTRACT

Art collectors in Indonesia have started published their collection in private museum that can be accessed by public since 2000. OHD museum owned by Oei Hong Djien and Ciputra Art Museum owned by Ciputra are the first museum that established by Indonesian art collector. This research analyzed the motivation of establishment of those museums, analyzed the collections, and the public appreciation to the collections and the museums. This research uses qualitative methods, with art history and art criticism approach. The sample for this research are Toety Herati Museum in Jakarta, Museum of Modern And Contemporary Art in Nusantara (MACAN) di Jakarta, and Tumurun Private Museum in Solo. Based on collector motivation analysis, they established the museum for increasing public appreciation to national and international art works. The collections that exhibited are historic art works that have high aesthetics values. Toety Herati Museum has a weakness in publication, but its collections are very important for Indonesian art history. *Tumurun Private Museum* has recent contemporary arts as well as old master art works, but public only have limited access to enter the museum. Museum MACAN is the most appreciated museum by public, with its publication and its collection that can attract public interest. Museum MACAN also has a good research for it collection and exhibition.

Keywords: art collector, museum, art work, appreciation

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Exploring the Player Intention to Pay on Multiplayer Online Mobile Games

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ABSTRACT

This paper aimed to investigate the behavior of online game players. This study focuses on three factors that influence the intention in paying for online games, namely fun, fantasy, and challenge. The respondents surveyed reached 1278 players of Arena of Valor (AOV) in Indonesia. The data were analyzed with Structural Equation Modeling with a Partial Least Square (PLS) approach using SmartPLS. This research developed four hypotheses. The results can be summarized as follows. First, fun has a significant impact on intention to pay. Second, fantasy has a significant impact on intention to pay. Third, challenge has a significant impact on intention to pay. Fourth, fun, fantasy, and challenge have a significant impact on intention to pay. The variable of fun has the greatest influence on intention to pay compared to the variable of fantasy and challenge. A gamer's feeling has a greater influence on a player's intention to pay for the game being played. Online game companies need to pay attention to aspects related to fun, so gamers have better judgment for the decision to pay for the game being played.

Keywords: mobile games, multiplayer, online, player intention

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Media Convergence Strategy on Metro TV (Optimizing the Use of New Media in the OPSI Program)

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ABSTRACT

This study aims to determine Metro TV's media strategy in media convergence, especially optimizing the use of new media. The long-term goal of this research is to find out whether this strategy is effective and the right thing for Metro TV to maintain the existence of promoting and maximizing the use of new media to participate in media convergence. While the specific target in this research is to find out how effective the use of new media is, so that it becomes an option for the audience to enjoy the program. The method in this study uses descriptive qualitative with in-depth interviews and observations. The results of this study are expected to add insight into the field of media convergence viewed from the perspective of managers and how communication development works in terms of culture, economy and digital technology.

Keywords: ethnography, new media, media convergence, digital technology

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Vehicle Identification Systems using Virtual Line Sensors and Speed Up Robust Features

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Abstract. This work proposes an improved and robust algorithm to a virtual line approach object movement detection using computer vision technique. The improved performance will be emphasized on how one line could detect multiple object, determines their sizes and could at most classify the object into group similarities. The algorithm later will identify the vehicles based on their license plate using speed up robust features - SURF technique. The method incorporating Bresenham's points plotter algorithm to determine the points coordinate in a line array, which later calculating movement within the given points and group neighboring points with pixel values indicating movement that are in close proximity as one object. This could then calculate the number of points laid within the group which then could determine the size of the object. As a result of the proposed work, a robust object classification technique that is implemented as a computer application that can be used in a live environment context.

Keywords: vehicle classification, computer vision, virtual sensors

Social Media Influencer Credibility and Social Influence on Intention to Use Fintech Service in Indonesia

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ABSTRACT

Communication and information technology innovations have been applied to various fields of industry and utilized as an opportunity in the financial business; one of those is Financial Technology (FinTech). FinTech companies mostly implement collaboration with social media influencers in their promotional and marketing strategies. This research aims to conduct investigate the impact of social media influencer's credibility and social influence on the intention to use FinTech Service technology users. The quantitative research method used by distributing questionnaires online to 400 respondents and processed using Path Analysis. The result of this research indicate that social influence has significant impact compared to the source credibility of social media influencers on users' intention to use of FinTech Service technology. Based on the results, concluded that the users of FinTech Service in Indonesia were more influenced by the suggestions and input from family and peers in choosing the type of Fintech Service application they used.

Keywords: Financial Technology, Intention to use, Source Credibility, Social Influence, Social Media Influencer

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Process Mining with Applications to Automotive Industry

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ABSTRACT

Process mining as a modeling and analysis tool can be used to improve the business performance by looking at the actual business processes. This paper presents the applications of process mining in automotive industry. Using event log data with timestamps, process mining algorithms, like inductive miner and fuzzy miner were able to automatically generate car manufacturing processes, automatically checking the conformance between the actual processes and the predefined standard ones, and identify and solve any bottlenecks and issues in the car manufacturing processes. A number of car manufacturing issues were considered in this research, such as process delays, stagnant workflow, mismanagement, faulty production and labor insufficiency. The modeling and statistical results show promising leverage of process mining in automotive industry that can lead to the autonomous car manufacturing with abilities for real-time process auditing and reengineering.

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SCHEDULE OF POSTER PRESENTATION

International Conference On Multidiciplinary Research 2019 (ICMR 2019)

P 01	Hengky S. H., Ariana S and Suheriyatmono	Sustainable-tourism's competitiveness in Cibodas Botanical Garden
P 02	Andjar Prasetyo, Hotnir Sipahutar, Asrori Asrori, Dr. Hadi Supratikta, Wawan Gunawan and Catur Wibowo Budi S	Policy and Economic Intervention on Human Resources Aspect of Central Java Province in Competitive Competitive Index
P 03	Indra Kusumawardhana, Emanuel Saptaputra and Diky Ramdan	Towards Millennial's Music Genre: Psychology of Music in A Restaurant
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SUSTAINABLE-TOURISM'S COMPETITIVENESS IN CIBODAS BOTANICAL GARDEN

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ABSTRACT

Housing development is increasing to the island of Java - Indonesia. Similarly, the number of motorized vehicles increased sharply. Both of these developments cause changes in land-use and vehicle pollution. The development of the population also increases every year. These three factors require improvements in quality of air, water, and recreational areas to support the lives of people living on the island. Cibodas botanical garden is a source of oxygen for life in West Java, which sustains 17% of the lives of living Indonesian. The purpose of this quantitative - qualitative study is to analyze the competencies of sustainable tourism. The finding of this study indicated that the operation of the botanical garden supported by regional income and the ticket retribution obtained from tourists. Demand of tourists had not fully fulfilled. Therefore, it is necessary to manage competency-based sustainable tourism that can handle the problem. This study uses the concept of sustainable and competitive tourism competencies that provide information about it to stakeholders in managing the botanical garden better in the future.

Keywords: Competitive tourism; Sustainable tourism; Demand of tourists

POLICY AND ECONOMIC INTERVENTION ON HUMAN RESOURCES ASPECT OF CENTRAL JAVA PROVINCE IN COMPETITIVE COMPETITIVE INDEX

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ABSTRACT

The benchmark for sustainable regional development has parameters including the Regional Competitiveness Index. One aspect of the regional competitiveness index is the aspect of human resources which has two pillars namely 1) education and skills and 2) health. The measurement of the Regional Competitiveness Index at the Central Java provincial level obtained an average value of 2.8 points for education and skills and 5.33 points for health at the highest scale of 7 points. The phenomenon that must be continuously improved with policy and economic intervention. This study aims to review how the Human Resource Aspect in the Regional Competitiveness Index is in a policy and economic perspective in Central Java. Data from 35 regions in Central Java Province in 2018 in the form of secondary data were used as a basis for analyzing qualitative descriptions in a policy and economic perspective. Policy and economic analysis focused on efforts to increase the value of points needed for 35 regions in Central Java Province through exploration studies. The result is to improve the aspect of human resources, there needs to be institutional strengthening in 35 areas, besides that it is directed so that there is a pillar of welfare as part of the aspect of human resources.

Keywords: aspects of human resources, policy perspective, economic perspective, welfare pillar.

Towards Millennial's Music Genre: Psychology of Music in A Restaurant

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ABSTRACT

The article reports research into the psychology of music in a restaurant atmosphere. Although studies about music in a restaurants industry are gaining the attention of researchers and restaurateurs such as perceptions and evaluations on an intention to purchase, time spent dining, and musical preferences. However, there is a room for discussion on the scientific understanding of any psychological aspect of music, particularly this paper that investigates music genre in a restaurants space towards millennial customers. While most restaurant patrons are motivated to satisfy their hunger, this qualitative study employs a combination of closed-ended and open-ended semi-structured online interview for an exploratory socio-psychological result. A thematic analysis was conducted to produce the findings. The article found that millennials mostly agree to have popular music genre (Billboard Charts and/or Global Top Music Selections) instead of art music (classical music, including both contemporary and historical classical music forms) and traditional/ folk music. Thus, depending on the restaurant ambiance, millennials suggest a matchmaking music mode (i.e. tone) and volume would enhance their longer stay, reducing boredom and substitution of unpleasant services and imbalance design/ architecture. Despite the limitation of study such as limited respondents, this article exclusively adds the contemporary discussion towards the psychology of music pertaining to millennials behavioral in a restaurant. This study could also stimulate directions for restaurateurs on the practical development strategy and research to improve the perceived authenticity of restaurant atmospherics.

Keywords: Music, restaurant, millennial

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An Appropriation of Contemporary Hermeneutical Methods in the Academic Discourses of PANCASILA

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ABSTRACT

This paper would like to propose several hermeneutical approaches to boost the development of academic discourses on Pancasila. It will appropriate four significant strategies from the field of hermeneutics as methodological models to do the researches, studies and discussions about Pancasila, namely, first, hermeneutic of suspicion; second, hermeneutic of remembrance, third, hermeneutic of proclamation, and fourth, hermeneutic of creative actualization. This appropriation aims at stimulating fresh, creative and meaningful talks about Pancasila that will give positive impacts on the understanding, appreciation and real practice of Pancasila in daily life.

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Cross Cultural Communication Model in Accomodating The Generation Gap of Social Structure in Indonesia

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ABSTRACT

This research described about how Cross Cultural Communication contributes its influence on accommodating the generation gap to improve a social structure in Indonesia, especially in Bina Nusantara University. In accommodating the generation gap, the cross cultural communication focus on the patterns of convergence and divergence of communication behaviors, particularly as they relate to the goals of the people for social approval, communication efficiency, and identity. This research used a descriptive qualitative method with constructivism paradigm. The results showed that accommodation in cross-cultural communication can improved the ability on problem-solving skills, collective decisions and can resolved the problem that arise from generation gap to make it become harmonious interactions. There were surely so many differences amongst generation, such as attitudes, focus, and priorities. The lack of the role in providing information from generation to another generation usually based on the assumption that the other generation already knew the condition, situation and also the meaning behind it as well without any discussion and deeper communication further. Due to the changes in social structure, Bina Nusantara University creating a cross cultural communication model to accommodate the generation gap in social structure and creating values to have a better social condition.

Keywords: Cross-Cultural Communication, Communication Accomodation, Social Structure, Binus University

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Storytelling in Clothing Design: A Study of Fashion Brand “SEAM” in Indonesia

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ABSTRACT

Storytelling is an ancient human art. It delivers an idea or message effectively by establishing an emotional connection with audiences. Good narratives draw emotions and we have known how the power of stories shapes our lives with certain values. This study presents the main aspects involved in designing clothing specially created to convey a message to cause the change in society. When fashion designers create their collections, they become a storyteller to be able to create a collection with a message to evoke emotions. The objective of this research is to give recommendations or guidelines to fashion design students and young fashion designers in creating a collection to help how to get inspired, how to describe the non-verbal messages and how to communicate specific values. This research is done by observation the process of women's ready to wear collection of the Indonesian brand “SEAM”. Building a strong message is an important part of the process in designing any collection of clothing. A message will give the framework and lead to lots of innovative thoughts and ideas.

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Natural Disaster as Tourist Attraction in Indonesia (A case study of Mount Sinabung)

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ABSTRACT

As a ring of fire region, Indonesia has become a tourist attraction for volcano eruptions. Some volcanoes in Indonesia have become tourist attractions such as *Anak Krakatoa* and Mount Sinabung. The location of these active volcanoes by several local tour operators are sold in the form of dark tourism activity regardless to some fundamental issues including ethics and the vulnerability of communities in the area affected by the disaster. Mount Sinabung in North Sumatra, which is the study took place, has recently become an attraction for several visitors in North Sumatra. Field observation is used in this study. This approach is used to determine the behavior of participants in certain social situations and understand their interpretations of the situation. The study was also supplemented by interviews with tourism stakeholders in Karo District. The finding of this study used to review the feasibility of natural disaster as a tourist attraction.

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