

2015 PHUKET, THAILAND CONFERENCES

April 2-3, 2015

 **ICNME 2015**

2015 3rd International Conference on Nano and Materials Engineering

 **ICEET 2015**

2015 International Conference on Electronics Engineering and Technology

 **ICSMA 2015**

2015 International Conference on Sensors and Mechanical Automation

 **JCMO 2015**

2015 1st Journal Conference on Modeling and Optimization



Grand Mercure Phuket Patong

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Programme



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WELCOME



Dear Participants,

Welcome to IACT 2015 Conferences in Phuket! We are confident that over the two days you will get the theoretical grounding, practical knowledge, and personal contacts that will help you build a long-term, profitable and sustainable communication among researchers and practitioners in a wide variety of scientific areas with a common interest in Nano and Materials Engineering, Electronics Engineering and Technology, Sensors and Mechanical Automation, Modeling and Optimization.

For the conferences of ICNME 2015, ICEET 2015, ICSMA 2015 and JCMO 2015, we had received more than 80 submissions, and around 30 excellent papers were accepted for presentation. Congratulations for these papers.

We wish to thank our outstanding keynote speakers Prof. Francisco E. Rivera, Assoc. Prof. Brian Yulianto and other distinguished professors for sharing their deep insights on future challenges and trends in Nano and Materials Engineering, Electronics Engineering and Technology, Sensors and Mechanical Automation, Modeling and Optimization.

Special thanks to all the researchers and students who with their work and participate in the conference.

Hope you enjoy the conference, the food, the hospitality, and the beautiful and charming environment of the island of Phuket, Thailand!



IACT Committee

Conference Agenda Overview

Thursday, April. 2nd, 2015

10 :00 am to 5:00 pm	Arrival and Registration  Lobby
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Friday, April. 3rd, 2015

8:30am to 8:45am	Opening Ceremonies Prof. Francisco E. Rivera Federal Aviation Administration, USA	Conference Room I
8:45am to 9:30am	Keynote Address-1: Prof. Francisco E. Rivera Federal Aviation Administration, USA	
9:30am to 9:50am	Group Photo & Coffee Break	
9:50am to 10:35am	Plenary Speech-1: Assoc. Prof. Brian Yulianto Institut Teknologi Bandung (ITB), Indonesia	
10:35am to 11:50am	Session 1A : Computer Science and Biomedical—5 presentations	Bubbles Restaurant
11:50am to 1:00pm	Lunch	Conference Room I
1:00pm to 2:00pm	Session 1B : Computer Science and Biomedical—4 presentations	Foyer
2:00pm to 2:20pm	Coffee Break	Conference Room I
2:20pm to 6:30pm	Session 2: Advanced Materials and Energy Engineering—17 presentations	Bubbles Restaurant
6: 30pm to 8:30pm	Dinner	Bubbles Restaurant

Instructions for Oral Presentations

Devices Provided by the Conference Organizer:

- Laptops (with MS-Office & Adobe Reader)
- Projectors & Screen
- Laser Sticks

Materials Provided by the Presenters:

- PowerPoint or PDF files
- Duration of each Presentation (Tentatively):
- Regular Oral Session: about 15 Minutes of Presentation including 2-3 Minutes of Q&A
- Plenary Speech: 45 Minutes of Presentation, 5 Minutes of Q&A



NOTICE:

- **Certificate of Participation can be collected in front of the registration counter.*
- **The organizer will not provide **accommodation**, so we suggest you make an early reservation.*
- **One best presentation will be selected from each session. The best one will be announced when each session ends, and will be awarded by the session chair after each session in the meeting room.*
- **The **attendee** should provide the author's authorization or attendee's passport ID when the attendee is none of the authors.*

Conference Secretariat Contact:

ICNME 2015: Ms. Rebecca Yang (icnme@iact.org)

ICEET 2015: Ms. Emma Wang (iceet@iact.org)

ICSMA 2015: Ms. Alice Kuo (icsma@iact.org)

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How Materials and other Technologies will impact Manufacturing?

Prof. Francisco E. Rivera

Federal Aviation Administration, USA



Abstract:

As we cannot forecast the Future, we can think about what are the promises of the future, the Trends.

In this essay, we explore some of the present trends that we think will have a large impact in the future, probably in the next ten or twenty years. The impact will depend not only in their potential, but in their main consequences.

The revolution of Informatics in the last century will only have a new contender with the incorporation of new Materials and Intelligence in Manufacturing. The new Materials will change not only the contents of products but the way of how are producing and using. We conclude with a review of how we should take into account some “priorities” in the future manufacturing revolutions.

Biography:

Dr. Francisco Eduardo Rivera is a Computer Scientist with the Federal Aviation Administration (FAA) at Washington DC where he manages the Knowledge Management System and Best Practices project for Air Traffic. He has a PH.D. in Computer Engineering (National Polytechnics Institute, France), he has two Masters one in Computer Sciences, and other in Future Studies and Science Policy; he also has Bachelors in Sciences in Physics and another in Computer Sciences. He is an Oracle Master and Green Belt Six Sigma certified. He came from Academia and Research where he has been professor at St. Edward's University (Austin Texas) where he was Chair of the Graduate Studies in Computer and Information Systems, Texas A&M International, Pennsylvania State University, Metropolitan Autonomous University, Technological Central-America University (Tegucigalpa, Honduras), Inter American University of Puerto Rico where he also was the Chair of the Graduate Studies in Open Information Systems and Educational Computing, He was full professor at the Doctoral Program in Administration at National University of Mexico and Research Leader at Barros Sierra Foundation (Future Research Center). He has developed several curricula and new studies, leading institutional computing groups and organized consortia with private firms as Microsoft, Oracle, IBM etc.

He has been involved in Knowledge Management, Strategic and Long-range Planning, Computer Security, System Engineering, Information Technology and Computing Simulation for more than 35 years. He has been consultant in several private and public institutions and international organizations such as UNESCO, Aeromexico, College of Bachilleres, School

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of Medicine of the Central Caribbean University, Ana G. Mendez Foundation, Oracle Caribbean, The Industry-Research Consortium (INDUNIV,Puerto Rico), etc. . He was deputy director at the National Computer Policy agency and Director at the Ecology and Urban Development Institute In Mexico He has published more than 120 papers and articles, presented and published in more than 140 conferences, and authored several books and chapter of books. He has received several accomplishment and distinction awards and appears at several International Who's who books. He was member of the Computing Reviews Editorial of the Association for Computing Machinery (ACM). He is member of several professional associations of which he is senior member of the International Association for Computer Sciences and Information Technology (IACSIT)



The Developments of Natural Extractions Sensitizer for Biophotovoltaic Based on Dye-Sensitized Solar Cells

Assoc. Prof. Brian Yulianto

Institut Teknologi Bandung (ITB), Indonesia



Abstract:

The natural dye is a promising development to solar cell technology due to the low production cost, the multicolor option, the flexibility, and the performances of visible light absorption. Some pigments extracted from natural dyes such as anthocyanin, chlorophyll, flavonoid, curcumin, and carotenoid have been tested as protosensitizers for dye-sensitized solar cells (DSSC). However, there are some problems identified from natural dyes such as the low stability, the fast electron recombination, the self-aggregation on TiO₂ surface, and the dye impurities. Performances of natural dyes as protosensitizer are influenced by light absorption capabilities, chemical structures of dyes, abilities to attach onto TiO₂ nanoparticles surface, the electronic structures of HOMO-LUMO dyes, the dye recovery abilities, the dye molar extinction coefficients, the solution environments, and the dye electron life time. Therefore, some solutions have been suggested to improve the natural dye performances such as the pH adjustment of the solutions, the optimization of dye concentration in the solution, the purification of dyes, the optimization of the HOMO-LUMO electronic structure of dyes, the molecular modification of the functional structure of donor electron of natural dyes to harvest more electrons and the modification of the Acceptor by anchor group to strengthen dye-TiO₂ attachment. In addition, some newly discovered performances of natural dyes have been discussed.

Biography:

Professor Brian Yulianto is serving as an associate Professor at Faculty of Industrial Technology, Engineering Physics Department, Institut Teknologi Bandung (ITB), Indonesia. After graduation of Bachelor at Engineering PhD program at Department of Quantum Engineering and Systems Science, The University of Tokyo Japan. He also spends several times as a postdoctoral fellow on National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba Japan. He focused the research on the synthesis and fabrications of nano structure oxide and their applications on energy and environments. He has developed some nanostructure thin films of ZnO, ZnO-CNT, SnO₂, SiO₂, TiO₂ for applications in gas sensors devices. For energy purposes, the natural dyes as well as TiO₂nanoporous has been investigated to improve the light harvesting efficiency of the Dyes Synthesis Solar Cells. He published several papers on Analytical Chemistry, ACS Journal, Sensors and Actuators B: Chemicals and other reputation journals. He has presented his research papers in many international conferences at France, Japan, China, Austria, Singapore, Korea, Germany and others. Now he is developing the National Center for Nanoscience and Nanotechnology in Indonesia.

CONFERENCE



Detailed Schedule

Thursday, April 2nd

Location  **Lobby**

<p>10: 00– 12: 00 13: 00 – 17: 00</p>	<p>Arrival and Registration</p>
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Tips:

After sign, you will collect your conference package, including:

- Original Receipt**
- Journal (Only for Author Attendee)**
- Representative / Pass Card with Tie**
- Printed Program**
- Lunch Coupon**
- Dinner Coupon**
- *Certificate (collected from Session Chair after the presentation)**
- Conference Souvenir**
- Computer Bag**

Notice:

- Please check on all these materials as soon as you get the package; if any of them is not included in the package, please let us know at once; If any of them gets lost after the registration, no additional one would be provided. Your understanding will be appreciated!
- Each regular registration covers only one package. Additional package will be charged.
- Some attendees may arrive on April 3rd, kindly be noted that you can register at the registration desk from 9 am onwards.

Friday Morning, April 3rd

Opening Ceremony	
Location	Conference Room I
8:30am to 8:45am	Opening Ceremonies Prof. Francisco E. Rivera Federal Aviation Administration, USA
8:45am to 9:30am	Keynote Speech 1: <i>How Materials and other Technologies will impact Manufacturing?</i> Prof. Francisco E. Rivera Federal Aviation Administration, USA
9:30am to 9:50am	Group Photo & Coffee Break
9:50am to 10:35am	Plenary Speech 1: <i>The Developments of Natural Extractions Sensitizer for Biophotovoltaic Based on Dye-Sensitized Solar Cells</i> Assoc. Prof. Brian Yulianto Institut Teknologi Bandung (ITB), Indonesia

-PAPER SESSIONS-

Session 1A: Computer Science and Biomedical	
Chair: Prof. Li Wang 5 presentations Time: 10:35pm to 11:50pm Venue: Conference Room I	
S002	The Design Of A Lower Limb Exoskeleton For Elders <i>Na Li</i> , Hongfang Wu, Lei Yan, Jian Wu, Sen Men and Hua Qian Beijing Forestry University, China

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	<p><i>Abstract-</i> The lower limb exoskeleton robot is a kind of humanoid device to enhance the human walking ability. In the development of the exoskeleton robots, the primary difficulty is the design of actuator, which is the chief element to ensure the adequate force/moment to assist human. Most exoskeleton robots designed by various organizations are failed to provide enough force to complete their mission. In our lab, we selected the linear motor. And a new design version has been put forward. The D-H parameters method is carried out and the simulation of ADAMS is presented. Then we obtained the request of the motor and the simulation could confirm that this kind of actuator can output the enough force.</p>
S003	<p>Muscle Sensing Device Design Using a PANDA Ring Resonator System <i>Kriengsak Yothapakdee</i>, Preecha P. Yupapin and Kreangsak Tamee Naresuan University, Thailand.</p> <p><i>Abstract-</i> We propose a micro-optical sensing system for muscle contraction and movement measurement, in which a PANDA ring resonator type is used as a basic optical device called muscle optical sensor (MOS) system. The MOS system consists of an optical add/drop filter which is connected to two micro-ring resonators, of which the right ring is a sensing unit and the left ring is a reference ring. The key contribution of this paper is a novel approach for measuring contraction and transfiguration of muscles by using the small scale optical device. The contraction or transfiguration of muscle is directly perturbed into the sensing unit, which changes the optical path length. These resultant changes in wavelength ($\Delta\lambda$) are measured and obtained by the difference of the sensing and reference signals. The experiment was conducted by using the MATLAB and Opti-wave programs, which indicated that the changes in the sensing radius were associated with the change in wavelength. The results and techniques can be used beneficially for muscle sensing applications.</p>
S004	<p>Four-Wave Mixing (FWM) Effects Within a Micro-Optical Device <i>Khomyuth Chaiwong</i>, Preecha Yupapin and Kreangsak Tamee Naresuan University, Thailand.</p> <p><i>Abstract-</i> A PANDA ring conjugate mirror is designed for phase conjugate mirror (PCM) devices with 3D usage. The design of the device parameters and optimum conditions have been improved by the four-wave mixing principle. In the design, a common laser is applied as the input light beam, in which the object beam is the reflected light beam from the throughput port, where the reference beam is the reflected light beam from the drop port of the PANDA ring. The interference of the light between these two beams can form a one pixel image, which is coupled by the two nonlinear side rings. This work has shown improvements in the effect of changing parameters such as the center and side ring radii and the coupling factors between the center and side rings. The purpose of this study was to identify optimal parameter values for the four-wave mixing phenomena leading to high image quality (optimum conditions). From the preliminary results, we have found that the optimum conditions are where the center ring radius is 2 μm and the radii of the side rings are 1.05 μm. The right coupling factor is 0.3 whereas the left coupling factor is 0.7. A PANDA ring conjugate mirror enables the design and fabrication of large area pixels for realistic applications.</p>
ET010	<p>Enhancement Machine Vision for Object Counter <i>Noppadon Itsadatikom</i> and Jakkree Srinonchat Rajamangala University of Technology Thanyaburi, Thailand</p> <p><i>Abstract-</i> Machine vision is recently used for automatic counting objects system which exploits the image processing to achieve the target. This article presents an intraframe analysis technique for object counter. It uses to solve the counting objects system which objects are located in different focus. It uses only one image can count it all. The canny technique is used to detect and recognize the object. Then the intraframe relation is used to calculate and count the small components in each object. The results show that it provides counting accuracy at least 98%.</p>
E001	<p>Scanning Tunneling Microscopy Observations of Sulfur Adsorbates on Pd(111) surface Xinli Leng, Lili Song, Zhongping Wang, Xiaoqing Liu, <i>Li Wang</i> Nanchang University, China</p>

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	<p><i>Abstract-</i> The adsorption behaviours of sulfur atoms on Pd(111) surface have been investigated by scanning tunneling microscopy (STM). After the clean Pd surface is exposed to H₂S at room temperature, the terraces of Pd surface are dominated by $\sqrt{3} \times \sqrt{3}R30^\circ$ Pd(111)-S while a mixture of small area of $\sqrt{7} \times \sqrt{7}R19^\circ$, disordered S and $5\sqrt{3} \times 2$ stripes distributes along the step edges. After annealing to 370K, $\sqrt{3} \times \sqrt{3}R30^\circ$ on the terrace are converted into $\sqrt{7} \times \sqrt{7}R19^\circ$.</p>
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11:50am—1:00pm Lunch Time

Location ➤ **Bubbles Restaurant**

Tips:

- Please be noted that lunch coupon is necessary for entering the Bubbles Restaurant.
- Please arrive on time to the Conference Room I by 12:55 pm. Thank you!

Friday Afternoon, April 3rd

Session 1B: Computer Science and Biomedical

Chair: Prof. Li Wang

4 presentations

Time: 1:00pm to 2:00pm

Venue: Conference Room I

E009	<p>Effect of Zr, Nb and Ti Additions on Injection Molded 316L Stainless Steel : Microstructural, Mechanical Properties and Corrosion Resistance</p> <p>H.Ozkan Gulsoy , Serdar Pazarlioglu , Semih Ozbey Marmara University, Turkey</p> <p><i>Abstract-</i> The objective of this research is to investigate the effect of Zr, Nb and Ti additions on microstructural, mechanical and electrochemical properties of injection molded 316L stainless steel. The amount of additive powder plays a role in determining the</p>
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	<p>sintered microstructure and all properties. In this study, 316L stainless steel powders used with the elemental Zr, Nb and Ti powders. The binders were completely removed from molded components by solvent and thermal debinding. The debinded samples were sintered at different temperature for 60 min. at different temperatures. Mechanical property, microstructural characterization and electrochemical property of the sintered samples were performed using tensile testing, hardness, optical, scanning electron microscopy and electrochemical experiments. Results of study showed that sintered 316L and 316L with additive powder samples exhibited high mechanical and corrosion properties in a physiological environment.</p>
E014	<p>Chemiluminescence Detection of disease factors on Paper Microfluidic Devices <i>Hyeran Noh</i> Seoul National University of Science and Technology, Korea</p> <p><i>Abstract-</i> This study developed simple methods to detect glucose in tears using paper based microfluidics. Correlation of tear glucose and blood glucose were studied. 11 volunteers participated in the experiments. After taking glucose tablets, tears and blood samples were measured at a given time intervals using a spectrophotometer or a paper diagnostics. As a result, glucose concentrations with increasing the glucose intake were increased in both tears and blood and it became the highest in 30 minutes. Later, the glucose concentration in tear and blood were decreased in about 60 minutes. Thus, we found that the tears and the blood glucose had the similar metabolic rate of decomposition showing a clear correlation between blood and tear.</p>
CQ5003	<p>Pharmacophore Modeling of N1-alkyltheobromine as Histamine-H1 Receptor Antagonist <i>Maywan Hariono</i> and Habibah A. Wahab Universiti Sains Malaysia, Malaysia</p> <p><i>Abstract-</i> Previous studies worked on the evaluation a few alkylxanthine derivatives synthesized from theobromine, exhibiting micromolar activities of the compounds against histamine in vitro. The structure-activity relationships study showed that the elongation of alkyl group at N1 of xanthine ring increased the tracheospasmodic activity. This result opened the opportunity for alkylxanthine to be developed as antihistamine. Presently, we elucidate the mechanism of N1-alkylxanthine derivatives as antihistamine at a molecular level using pharmacophore modeling. The pharmacophore model was generated from a series of Histamine-H1 antagonists employing hydrogen bond acceptor (HBA), hydrogen bond donor (HBD) and two hydrophobic features and used as a search queries to map the N1-alkylxanthine derivatives as Histamine-H1 antagonist. The results showed that all the designed ligands can adopt the pharmacophore features model providing the insight understanding about the opportunities of the N1-alkylxanthine as Histamine-H1 antagonists.</p>
CQ5005	<p>Effects of Hand Washing Campaign on Dynamical Model of Hand Foot Mouth Disease Thanyada Phutthichayanon and <i>Surapol Naowarat</i> Suratthani Rajabhat University, Thailand</p> <p><i>Abstract-</i>In this study, we proposed a nonlinear mathematical model of Hand Foot Mouth Disease (HFMD) due to the effectiveness of hand washing campaign as a control strategy. The model is analyzed using stability theory of differential equations and computer simulation. The results showed that there were two equilibrium points; disease free equilibrium and endemic equilibrium point. The qualitative results depend on the basic reproductive number (R_0). We obtained the basic reproductive number by using the next generation method. Stabilities of the model are determined by Routh - Hurwitz criteria. If $R_0 < 1$, then the disease free equilibrium point is local asymptotically stable, but if $R_0 > 1$, then the endemic equilibrium point is local asymptotically stable. The graphical representations are provided to qualitatively support the analytical results. It concluded that with an increase in the effectiveness of hand washing campaign, the infected population reduced.</p>

Friday Afternoon, April 3rd



2:00pm to 2:20pm

Location  Foyer

-PAPER SESSIONS-

Session 2: Advanced Materials and Energy Engineering

Chair: Associate Prof. Anders Gård

17 presentations

Time: 2:20pm to 6:30pm

Venue: Conference Room I

<p>E002</p>	<p>Rapid Biomimetic Coating of Biocompatible Calcium Phosphate on Titanium: Influence of Pretreated NaOH Concentration and Cleaning Method Faungchat Thammarakcharoen , Nattapat Hobang and Jintamai Suwanprateeb National Metal and Materials Technology Center, Thailand</p> <p><i>Abstract-</i>In this study, the influence of employing three different sodium hydroxide (NaOH) pretreatment concentration (1, 3 and 5M) and two cleaning methods (Ultrasonic or Rinse) used in rapid biomimetic coating process on phase composition, function groups, thickness, amount and microstructure of the resulted coating was carried out. Regardless of process parameters, x-ray diffraction and Fourier transform infrared spectroscopy revealed that the all coating mainly comprised octacalcium phosphate and hydroxyapatite as main phases while the microstructure similarly consisted of sharp and interconnected plate-like calcium phosphate (CaP) crystals vertically grown on the surface of titanium. However, the change in sodium hydroxide concentration in pretreatment step and cleaning method influenced the weight change after pretreatment, coating continuity and uniformity, but not the weight change after coating. This could be related to amount of the amorphous alkali gel layer formed during pretreatment step which influenced the rate of coating formation in rapid biomimetic coating process.</p>
<p>E003</p>	<p>Effect of sintering procedure on the performance of glass foams fabricated at low temperature Ye Li, Xudong Cheng, Wei Cao University of Science and Technology of China, China</p> <p><i>Abstract-</i>This paper presents the obtainment of glass foams, using sodium silicate and fly ash, by a two-step treatment. The effect of the sintering procedure on the thermal conductivity and density of the samples was studied. The results show that a first stage at 100 °C and a second stage at 400 °C, with a holding time of 15/30 min, could be considered as the most appropriate for the material preparation. 10 °C/min and 2 °C/min of the heating rate were chosen to reduce the thermal conductivity and density. Then the</p>

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	<p>material with the thermal conductivity of 0.049 W/m K and the density of 152 g/cm³ was obtained. Therefore, this prepared glass foams have a large potential of thermal insulation application.</p>
E010	<p>The Effect of Styrene-Ethylene-Butadiene-Styrene on the Friction and Wear Properties of Polystyrene/Low Density Polyethylene Blends Munir TASDEMIR and Ibrahim MISKIOGLU Marmara University, Istanbul, Turkey</p> <p><i>Abstract</i>-The polymer blends offer end products with better thermo-mechanical properties and they can be more economical. Hence, the interest in the blends by the plastics industry has been increasing and the industry has been moving towards more complex systems.</p> <p>In the present work, an attempt was made to improve compatibility in a polymer blend composed of two normally incompatible constituents, namely, low density polyethylene (LDPE) and polystyrene (PS), through the addition of a compatibilizer. The compatibilizing agent, styrene-ethylene-butadiene-styrene block copolymer (SEBS), was added to the polymer blend in ratios of 5, 10, 20, and 30 wt% with a twin-screw extruder. The morphology and the compatibility of the mixtures were examined by scanning electron microscopy. Further, all blends of LDPE/PS/SEBS were tested to examination to obtain their tribological properties. The result showed that the addition of SEBS to the PS/LDPE blend increased the friction coefficient and the wear rate.</p>
E011	<p>Removals of toxic oxyanions from aqueous solution by synthetic ZnAl layered double hydroxide Patsaya Songkhum, and Kritapas Laohhasurayotin National Science and Technology Development Agency, National Nanotechnology Center, Thailand</p> <p><i>Abstract</i>-Adsorption of toxic oxyanions such as borate, chromate, and phosphate ions from natural water resources have been studied in several materials. Layered double hydroxide (LDH) is also considered. Its effective adsorptivity toward layer intercalation and surface interaction of material upon water pollutes places itself as a promising choice among most environmental-friendly materials including activated carbon, silica, alumina, and zeolite. ZnAl-LDH was simply prepared in the laboratory via co-precipitation method. The synthesized LDH demonstrated impressive abilities to remove such oxyanions. Mechanistic chemistry of the oxyanions uptake involves the adsorption and ion-exchange processes, which were confirmed by X-ray diffraction (XRD), FT-IR (fourier transform-infrared) spectroscopy and elemental analysis. The morphological study of ZnAl-LDH was carried out through scanning electron microscope (SEM) and transmission electron microscope (TEM) to identify the sheet-like structure.</p>
E012	<p>Toluene Removal using Basic Modified Extruded Activated Carbon via Gas Phase Adsorption System Kannika Sithisuwannakul, Pummarin Khamdahsag, Saowaluk Chaleawler-Umpon and Nuttaporn Pimpha National Nanotechnology Center, NSTDA, Thailand</p> <p><i>Abstract</i>-Volatile organic compounds (VOCs) are well known in term of their toxicity and difficulty in elimination. Accordingly, VOCs treatment is one of the most topics that challenge researchers to conquer. In this research, we study a toluene treatment utilizing extruded activated carbon (EAC) which has cylindrical shape with averaged 4 millimeter in diameter via a fix-bed gas adsorption. Column experiments are demonstrated at various conditions, column size and inlet concentration for examples. Furthermore, modified EAC with basic solution, ammonia and pyridine (EAC-Am and EAC-Py) are performed in order to decrease oxygen group on the surface of EAC and compare their activities with commercial EAC. Toluene absorption are predicted by entire break-through curves moreover the materials characterization is obtained using scanning electron microscope (SEM), Brunauer-Emmett and Teller (BET) and also Boehm's titration technique to confirm a functional group on each modified EACs surface.</p>
E013	<p>Analysis of MWCNT/PP composites for thermal expansion behaviour</p>

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	<p><i>Prashant Jindal</i> Panjab University, India</p> <p><i>Abstract</i>-This paper is aimed at analysing the thermal expansion behaviour of Polypropylene(PP)/multi walled carbon nanotubes (MWCNTs) composites under different temperature conditions ranging between 350C to 1250C for different compositions of MWCNTs in PP. Composites of PP/MWCNTs with 2.5wt%, 5wt% and 10wt% MWCNTs in PP were fabricated using a simple solution mixing technique. Dilatometer was used to study the comparison of thermal expansion behaviour of these composites with pure PP specimen. For temperatures above 1000C, most polymers tend to deform and the phase change process gets initiated. Therefore, this study is relevant from the aspect of applications where composite materials are subjected to temperatures ranging above room temperature conditions. The coefficient of thermal expansion for these composites was evaluated and compared to the pure PP specimen. It was observed that the coefficient of thermal expansion (CTE) for 2.5wt% and 5.0wt% MWCNT/PP composite specimen was higher by nearly 20% and 30% respectively in comparison to that of pure PP while 10wt% MWCNT/PP composite had a CTE similar to the pure PP specimen. This study is very important from the aspect of applications where composite materials are used under unpredictable temperatures variations. Composites with higher coefficient of expansion get expanded when subjected to higher temperatures which can cause interference with other devices installed in the vicinity. Therefore, this study can assist as a guideline to select the composition of materials to be used for different temperature conditions.</p>
E015	<p>Effect Of Particle Size Of Natural Based Carbon Filler To The Absorbency Of Superabsorbent Polymer Composite Synthesis By Graft Polymerization Method</p> <p><i>Wan Siti Nadiyah Wan Yaacob</i>, Saidatul Shima Jamari, Suriati Ghazali Universiti Malaysia Pahang, Malaysia</p> <p><i>Abstract</i>-Superabsorbent polymer (SAP) has been widely used in many application such as in hygiene products, agriculture and also horticulture, wastewater treatment and others. The absorbency and degradability of SAP can be enhanced by utilization of carbon filler. In this research, SAP with carbon filler has been synthesized using graft polymerization method. Acrylic acid (AA) used as monomer, N, N-methylbisacrylamide (MBA) used as crosslinking agent, ammonium persulphate (APS) as initiator and different size of natural carbon filler used as filler. Water absorbency test showed that SAP with 500 µm carbon filler has highest degree of swelling while SAP with 125 µm and 71 µm carbon filler has degree of swelling lower than degree of swelling of control hydrogel. Scanning electron microscopic (SEM) image showed 500 µm carbon filler has better surface morphology and alignment to make interfacial contact with hydrogel besides built excellent capillary effect to absorb and store more water. In conclusion, smaller in particle size of filler will decrease the degree of swelling of SAP.</p>
E016	<p>Effect of Superabsorbent Polymer Composite Filled Carbon Fiber towards the germination of Abelmoschus Esculentus</p> <p><i>Saidatul Shima Jamari</i>, Suriati Ghazali and Wan Siti Nadiyah Wan Yaacob Universiti Malaysia Pahang, Malaysia</p> <p><i>Abstract</i>—As agriculture activities are becoming major sector that contribute a lot of income to Malaysian economy, the sustainability of the soil and environment need to maintain to ensure the soil fertility is not affected by this growing sector. The application of superabsorbent polymer filled carbon fiber on agriculture will ensure the feasibility of the biodegradable composite thus maintain the soil fertility. Superabsorbent polymer filled 0.5 and 0.1 weight percent of carbon filler applied to soil to study how it affects the plant growth of okra. After 21 days of plantation, the okras germinated from the soil mixed with the SAP were higher from the control. It shows that the addition of SAP with or without carbon filler contributes positive effect to the soil environment. Trend of plant grow taken after 7th and 14th days of plantation shows that the additional function of carbon to improve the physical</p>

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	<p>properties of soil (soil conditioner), other than the organic filler to increase the biodegradability of SAP. In conclusion, superabsorbent polymer filled carbon fiber will help to improve the quality of the soil and help to fertilize the okras growth.</p>
E017	<p>Thermal heat reduction in Photovoltaic solar concentrator using thin film filter <i>Nawwar Ahmad</i>, Yasuyuki Ota and Kensuke Nishioka University of Miyazaki, Japan</p> <p><i>Abstract</i>-This paper presents a comparison of three-dimensional simulation for concentrator photovoltaic (CPV) module using two types of multi-junction solar cell. Each had its own range of spectral response and based on that range a thin film filter was developed for each case to reflect the unused spectral of the solar spectrum and allowed the desired spectrum to reach the solar cell. The thin film was deposited on a secondary optical element that was used to homogenize the irradiance distribution on the solar cell. A thermal simulation was conducted to compare the resulted decrease in cell temperature due to the use of the designated thin film for each case.</p>
E018	<p>Reduction of Photovoltaic Temperature using Thermal Radiation Coating Satoshi Nakamura, Kei Nomura and <i>Kensuke Nishioka</i> University of Miyazaki, Japan</p> <p><i>Abstract</i>-The temperature of solar cells increases under the actual operating conditions, and the conversion efficiency of solar cells decreases with increasing temperature. In this study, a thermal radiation layer (Pelcool (R), PELNOX Ltd.) was coated on the back sheet of the PV module by a spray coating method and the effect was evaluated. The thickness of the layer was 30 μm. The temperature of the PV module with the thermal radiation coating was lower than that of the PV module without the thermal radiation coating. And the operating temperature range of the PV module with the thermal radiation coating was decreased by 2~3 °C. The open-circuit voltage of the PV module with the thermal radiation coating was 0.1 V higher than that of the module without the coating due to the thermal radiation coating.</p>
E021	<p>Formation of silicon from Shirasu volcanic ash using solar furnace <i>Keisuke Hatakeyama</i>, Hiroshi Kaneko and Kensuke Nishioka University of Miyazaki, Japan</p> <p><i>Abstract</i>—Silicon was prepared from Shirasu volcanic ash using solar furnace. The solar furnace was composed from two parts; Fresnel lens and reacting furnace. Fresnel lens was used to concentrate sunlight onto the reacting furnace where the sample was put on. The sample was made from silica and silicon carbide formed using Shirasu volcanic ash, and placed in the carbon crucible inside the reacting furnace. By using light of sun concentrated with Fresnel lens, the sample was irradiated for 3.5 hours and the furnace was left until it cooled down to room temperature. Both irradiating and cooling processes were done under argon atmosphere. After the experiment, the sample was evaluated by X-ray diffraction. The sample was found to have produced the Si component.</p>
E024	<p>Electrospun Cellulose Acetate Fiber Containing Rubber Extract <i>Natthakitta Suwannateep</i>, Chidchanok Meechaisue, Hubert Ruch Suan Dusit Rajabhat University, Thailand</p> <p><i>Abstract</i>-Recent studies on cream of rubber extract (HB) have significantly showed skin improvement results, however, there were color and odor issues. To solve the problems, we successfully produced ultra-fine cellulose acetate (CA) fiber mats (electrospun fibers) containing 1-5 wt% extracts of rubber from <i>Hevea brasiliensis</i> without any chemical additions. This new approach has in fact revealed the desired material and biomolecule immobilization. The SEM photographs show the straight and even shaping of the processed HB-CA fibers. The average fiber diameters of the HB-CA fibers ranged between 415 and 585 nm. Moreover, HB-CA solutions containing 1-3% HB extract resulted in a more consistent texture of the fiber mats. This was the first time to produce nano-fibers using only rubber extract and cellulose acetate without any other potentially bioactive components involved. This</p>

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	<p>innovation did not only solve the initially addressed color and odor issues, but also provided a new purified material of very small fibers which allows better control of its bioactivity due to the fact that less chemical substances are involved. Its highly interesting characteristics, such as high surface areas to mass ratio, high porosity et al make this result an excellent potential candidate e.g. facial masks, and other innovative products in the field of cosmetics and pharmaceutical industry. Further research is needed and highly promising.</p>
E025	<p>Nano-scale friction of multi-phase powder metallurgy tool steels Anders Gård, Patrik. Karlsson and P. Krakhmalev, E. Broitman Karlstad University, Sweden</p> <p><i>Abstract</i>-Friction is a fundamental phenomenon in tribology involving complex mechanisms between the contacting surfaces. Measurements of friction are often made using devices with substantially larger contact area than dimensions corresponding to microstructural features of the materials. Hence, for multi-phase materials, influence of particular microstructural constituents is not resolved. In the present work, a tribometer with a contact area in the nano-scale range was used to map friction for different types of tool steels with different chemical- and phase composition. Owing to the small tip radius, frictional characteristics of primary carbides and the steel matrix were measured and compared. Depending on chemical composition, a difference was observed where the coefficient of friction was approximately twice higher for the steel possessing highest coefficient of friction, including both carbides and the steel matrix.</p>
E026	<p>Synthesis and Surface Modification of ZnO Nanorods Arrays Muhammad Aftab Akram, Sofia Javed, Mohammad Mujahid National University of Sciences and Technology, Pakistan</p> <p><i>Abstract</i>-Synthesis of One dimensional (1-D) vertically aligned nanostructures of ZnO are reported to act as scaffold for conversion to or coating of other semiconducting compositions. Surface of ZnO is converted to ZnSe by anion exchange and results in formation of ZnO/ZnSe core/shell nanorods. ZnSe is further converted to CuSe by cation exchange method to fabricate ZnO/CuSe core/shell nanorods. ZnO nanorods or core/shell compositions are decorated with absorber nanoparticles of CZTSe & CIGSe for the fabrications of photoanodes of nanowire solar cells. 1-D or core/shell Nanostructures are characterized by scanning electron microscope for morphological analysis and structural confirmations are made by XRD and Raman spectroscopy.</p>
E3004	<p>Comparative Study Between Sic Reinforced Al 64430 Metal Matrix Composites And RHA Reinforced Al 64430 Metal Matrix Composites Meena Laad, Vijaykumar S. Jatti, and Satyendra Yadav Symbiosis International University, India</p> <p><i>Abstract</i>-The excellent mechanical properties of Aluminium Metal Matrix Composites find applications in a variety of engineering applications in the automotive, aerospace and heavy machinery industries. This study aims at synthesis and characterization of Al 64430 reinforced with SiC particles and Rice Husk Ash (RHA). Rice husk ash is an agricultural waste which is produced in millions of tons worldwide. Aluminium was used as the base metal. With liquid metallurgy technique the metal matrix composites were prepared. The MMCs were synthesized with 3 % weight percentage RHA in Al metal matrix and the mechanical properties such as hardness, tensile strength and structural properties of MMCs were studied. The microstructure of the synthesized composites was examined by optical microscope and XRD techniques. The synthesized MMCs were found to have increased tensile strength, hardness, increased ultimate strength. The density of MMCs was observed to be decreased. This study indicates that RHA can be used as reinforcement material to synthesize light weight composites with increased hardness, tensile strength, Young's modulus for various industrial applications.</p>
E3005	<p>Synergistic Effect of Graphene Nanoplatelets and Nanoclay on Epoxy Polymer Nanocomposites Md. Nuruddin, Raju Gupta, Alfred Tcherbi-Narteh, Mahesh Hosur, and Shaik Jeelani Tuskegee University, USA</p>

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	<p><i>Abstract</i>-The prime objective of this study was to fabricate epoxy polymer composite modified with graphene nanoplatelets (GP) and montmorillonite nanoclay (MMT) binary filler materials. Different loading percentages of individual and binary nanofillers were incorporated into an epoxy matrix system to investigate the synergistic effect of nanofillers on composites properties. Dynamic mechanical analysis (DMA) and three point bend test were carried out to investigate the viscoelastic and flexural properties of neat epoxy and nanofillers reinforced nanocomposites. Incorporation of 3 wt. % of MMT and 0.1 wt. % of GP resulted in better flexure strength, modulus and storage modulus although there is no significance change in glass transition temperature (T_g).</p>
CQ5004	<p>Development of High-speed Shearing Method to Obtain the Flow Stress under High Strain Rate Norfariza binti Ab.Wahab, Hiroyuki Sasahara, Shinnosuke Baba, Yuta Hirastuka, Takashi Nakamura Tokyo University of Agriculture and Technology, Japan</p> <p><i>Abstract</i>—It is well known that a numerical simulation technique can be used to predict machining states such as cutting forces, stresses and temperature distribution. However, it is critical to simultaneously estimate the stress-strain relationship of the workpiece, and the friction characteristics between tool-chips during high-speed cutting processes. The objective of this study was to develop a new high-speed shear-slitting method that could at the same time neglect friction between tool-chip deformations. Through the proposed method, high-speed deformation characteristics of workpiece flow stress applicable for FEM simulation can be obtained. In this study, the Johnson-Cook (JC) constitutive equation flow stress model was considered as a function of strain, strain rate and temperature under a high strain rate during a shear-slitting process. As a result, we developed a high-speed shear-slitting method that can achieve high strain rates of up to 3.67x10⁴ s⁻¹. We then propose a method for deriving the JC constitutive equation from the shear-slitting experiment and two-dimensional simulation of shearing process</p>



✧ **Tips:**

The best paper will be chosen after each session and the certificate will be awarded by the chair. Good Luck!

Friday Evening, April 3rd



6:30 pm to 8:30 pm--Dinner

Location ➤ **Bubbles Restaurant**

Tips: The Dinner will start at 6:30pm. Please kindly attend on time with bringing the Dinner Coupon.

ICSCA 2015

2015 4th International Conference on Software and
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Hong Kong
June 22-23, 2015
<http://www.icsca.org/>
Submission Deadline: May 1th, 2015

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Conference papers will be published in journals as below
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Journal of Emerging Technologies in Web Intelligence (JETWI: ISSN: 1799-8859 (Online))

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Submission Methods

Email: icsca@iact.net (.pdf and .doc)

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ICMVA 2015

2015 International Conference on Machine Vision and Applications

<http://www.icmva.org>

Hong Kong, during June 22-23, 2015

Submission Date: Before May 1, 2015



About Us

ICMVA 2015 is the main annual Machine Vision and Applications conference aimed at presenting current research being carried out. The idea of the conference is for the scientists, scholars, engineers and students from the Universities all around the world and the industry to present ongoing research activities, and hence to foster research relations between the Universities and the industry. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration.

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Cardiff School of
Mathematics,
Cardiff University,
UK



Prof. Zhouchen Lin
School of Electronics Engineering and
Computer Science,
Peking University,
China



Prof. Albert C. S. Chung
Department of Computer Science
and Engineering,
The Hong Kong University of Science
and Technology,
Hong Kong



Prof. Kenneth K. Y. Wong
Dept. of Computer Science,
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9:30am--12am, 2pm-5:30pm
Monday to Friday



ICMMM 2015

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All accepted papers of ICMMM 2015 will be published in the Advanced Materials Research Journal (ISSN: 1022-6680) as a special issue.

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Submission Methods

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Important Date

Full Paper Submission
May 25, 2015
Notification of Acceptance
Before Jun 5, 2015



NOTES



NOTES



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