3rd International Conference on Surfaces, Coatings and Nanostructured Materials – ASIA

City University of Hong Kong
Hong Kong SAR, PR China

4-7 December 2017

PROGRAMME BOOKLET

www.nanosmat-asia.com

香港城市大學
City University of Hong Kong

NANO-21: Tran Van Tam, University of Ulsan, Korea
"One-pot hydrothermal synthesis of B-doped graphene quantum dots decorated/graphene hydrogels composite for highly efficient electrocatalyst"

NANO-25: Rui Yang, Nanjing Medical University Affiliated Wuxi Maternity and Child Health Care Hospital, China
"Inhibition of heat-shock protein 90 sensitizes liver cancer stem-like cells to magnetic hyperthermia and enhances anti-tumor effect on hepatocellular carcinoma-burdened nude mice"

NANO-35: Du-Jeon Jang, Seoul National University, Korea
"High Photocatalytic Activity of SnO2/ZnS Nanocomposites Based on Interfacial Charge Transfer"

NANO-36: Joon Ki Kim, Seoul National University, Korea
"Gold Nanoclusters Showing Metal-Enhanced Fluorescence on Ag@SiO2 Nanoparticles"

NANO-37: Cao Shuaiqi, Zhengzhou University, China
"Effect of oxygen flow on physical properties of amorphous transparent conductive Ta-SnO2 thin films deposited with magnetron RF reactive sputtering method"

NANO-38: Wangqingjie, Zhengzhou University, China
"Effect of oxygen flow on structural, electrical and optical properties of transparent conducting amorphous SnO2:Al thin film"

NANO-40: TAE GEUN KIM, KOREA UNIVERSITY, Korea
"ITO/Ag/AlN/Al2O3-Based Multilayer Films with Conductive Channels"

NANO-43: Makpal Seitzhanova, The Institute of Combustion Problems, Kazakstan
"OBTAINING GRAPHENE OXIDE FROM RICE HUSK"

NANO-57: Soon-Won Jung, Cheongju University, Korea
"Fabrication and Characterization of Nafion-Based Amperometric Hydrogen Sensor"

NANO-64: Changsang Yun, Seoul National University, Korea
"Development of multi-functional poly(vinylidene fluoride) nanoweb for energy harvesting textiles"

NANO-68: Jiang Kaiming, University of Ulsan, Korea
"Effect of cobalt and tungsten doping on the structural and optical properties of NiTiO3 materials"

NANO-69: Haewon Jung, University of Ulsan, Korea
"The effect of synthetic temperatures on photocatalytic performance and properties of g-C3N4/ZnO composite materials"

NANO-70: Lien Thi Do, University of Ulsan, Korea
"Investigation of oxidative cracking route over Ni/CZA catalysts through catalytic steam cracking of 1-methyl naphthalene"

NANO-71: Huy Nguyen-Phu, University of Ulsan, Korea
"Glycerolysis of urea over ZnO and ZnAl mixed oxide catalysts: the evolution of Zn species and reaction intermediates as a function of reaction time"

NANO-73: SeungDong-Seo, University of Ulsan, Korea
"Manufacturing of Water-Based Hollow Polymer and Its Application to Electrochemical Cells"

NANO-74: NYAMBAYAR SUGARTSEREN, University of Ulsan, Korea
"Carbon Nanotube-Graphene Nanoplatelet Hybrids and their Composites in Polymeric Binders of Lithium-ion Anodes"

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Organising Committee:
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THE NANOSMAT SOCIETY

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the NANOSMAT society

The NANOSMAT Society (TNS) has been set up to serve the needs of the NANO community. TNS is designed to provide an effective and stimulating platform for international people to foster, develop and promote communication, education, networking, dissemination of knowledge, research and innovations in all aspects of nanoscience and nanotechnology.

The NANOSMAT Society aims to:

- Promote all aspects of nanoscience and nanotechnology
- Educate and bring awareness to people about nanotechnology and its impact on society and the world which we live in
- Raise, discuss and debate nano-related issues, including government policies on nanotechnology
- Facilitate liaisons and coalitions to help advance the Society's goals
- Offer society memberships to people
- Organise international NANO related conferences
- Provide an effective advertising platform for companies to promote their business
- Promote education and training through organising workshops, short educational courses, seminars, etc Bringing to the front, current and most recent up-to-date scientific and technical information to the public
- Alert people about new job opportunities relating to nanotechnology
- Publish magazines, reports and newsletters

Abstracts Booklet

3rd NANOSMAT-Asia Conference, 4-7 December 2017, Hong Kong (P.R.C)

Venue: City University of Hong Kong

CHAIRS:

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香港城市大學
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NANO-43(2)

APPLICATION OF NANOCRYSTALLINE CALCIUM HYDROXYAPATITE IN 3D BIOPRINTING

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In the present work, calcium hydroxyapatite was synthesized by various methods of chemical deposition using a biological source - the egg shell of birds, which is 94% calcium carbonate. The egg shell was heat treated at a temperature of 900°C., followed by the addition of an aqueous solution of orthophosphoric acid in an ultrasonic bath. Studies carried out by X-ray diffraction and scanning electron microscopy showed that the resulting powdered material was a micron-sized fine powder (4-5 μm).

NANO-43

OBTAINING GRAPHENE OXIDE FROM RICE HUSK

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Graphene is an allotrope of carbon in the form of a two-dimensional, atomic-scale, hexagonal lattice in which one atom forms each vertex. It can be considered as an indefinitely large aromatic molecule, the ultimate case of the family of flat polycyclic aromatic hydrocarbons. In recent years graphene has become increasingly popular among engineers and researchers due to its unusual mechanical, thermal, electrical and optical properties.
Methods for its growth of graphene have been mainly catalytic chemical vapor deposition, heat-treatment of SiC, and the reduction of graphene-oxide. However, there still is room for methods that are more simple, cost-effective, and large scale. In this contribution, we have synthesed and characterized of graphene from agricultural waste such as rice husks. The graphene obtained from rice husk possesses a unique structure with clean edges, nanosize holes, and topological defects in the carbon lattice, which could trigger novel physicochemical properties. It is envisaged that graphene from rice husks opens the possibility of developing various applications due to its inexpensive, simple and scalable production. As an initial material, we used rice husks, which is a agricultural waste and KOH. In this work, KOH has been used as a typical chemical agent to induce porosity in carbon materials including carbon nanotubes, graphene, and carbon fibers, thus enhancing

their electrochemical performance. The yield of the product was ~ 10% by weight. The obtained samples were investigated by Raman spectroscopy. The obtained peaks characterize the presence of graphite and graphene films in the composition of the sample. In summary, we have demonstrated a simple, cost-effective, and scalable method for producing graphene with stable and atomically smooth edges through the activation of rice husks with KOH. Detailed observation revealed that the produced samples consisted of monolayer graphene with domains of a few nanometers in size. Our findings confirmed that rice husks could be converted to high-value-added graphene in a rapid, reliable, scalable, and cost-effective manner. Additionally, the presence of clean and stable edges in our rice husk-derived graphene should possess unique physicochemical properties that make them useful for fabricating high-performance carbon-based energy storage and conversion device, next-generation water filters, and various nanocomposites.

NANO-50

Development of New Correlations Based on the Measurements of pH Levels of Alumina, Copper Oxide, and Stainless Steel Nanofluids

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In this study the pH levels of alumina (Al2O3), copper oxide (CuO), and stainless steel (SS) nanoparticles dispersed in deionised water (DIW) mixture were measured in a temperature range of 10◦C to 60◦C. The volumetric concentration of nanoparticles in these fluids ranged from 0.1 to 1% for different nanofluids. The as-received average particle sizes (APS) considered were from 40 nm to 80 nm [1-3]. The pH measuring apparatus and the measurement procedure were validated by measuring the pH of a calibration fluid, whose properties are known accurately [4]. The measured pH values agreed within ±0.2% with the published data reported by the manufacturer. Following the validation, the pH values of different nanofluids were measured. The measurements showed that the pH of nanofluids had a shift in values with the increase in temperature and increased with the increase in particle volumetric concentration (PVC) except for the SS case, where the pH value decreased with the increase in PVC. From the experimental data, empirical models were developed for the nanofluids to express the pH as functions of material, temperature, and volumetric concentration of the nanoparticles.

[1] SkySpring Nanomaterials. Nano Powder, Stainless Steel Nanoparticles, (2017). http://ssnano.com/inc/sdetail/stainless_steel_nanoparticles/2760. Accessed September 15, 2017.