



**ABSTRACT BOOK**

# **ACCMS - TM 2018**

**Asian Consortium on Computational Materials Science  
- Theme Meeting on Multiscale Modelling of Materials  
for Sustainable Development**

**September 7<sup>th</sup> - 9<sup>th</sup>, 2018**

Vietnam National University, Hanoi

PO2.24	<b>Expanding applications of bimetallic metal-organic frameworks NiFe-MIL-53 as an efficient heterogeneous catalyst for the synthesis of pyridyl benzamides from aminopyridine and trans-beta-nitrostyrene without external oxidants</b> <u>Oanh Thi Kim Nguyen, Long Giang Bach, and Trinh Duy Nguyen</u>	207
PO2.25	<b>High photocatalytic activity of Pd-decorated BiVO<sub>4</sub> nanoparticle for methylene blue degradation under visible LED light irradiation</b> <u>Vu Dai Cao, Linh Xuan Nong, Vinh Huu Nguyen, Thuan Van Tran, Lam Dai Tran, Sy Do Trung, Long Giang Bach, and Trinh Duy Nguyen</u>	208
PO2.26	<b>Synthesis and photocatalytic activity for degradation organic dye of xCoFe<sub>2</sub>O<sub>4</sub>/(1-x)TiO<sub>2</sub>-5%La (x=0.2) composite</b> <u>Dang Thi Minh Hue, Nguyen Thi Tuyet Mai, Tran Vinh Hoang, and Huynh Dang Chinh</u>	209
PO2.27	<b>A study of physical properties and photocatalytic ability of g-C<sub>3</sub>N<sub>4</sub> nanosheets synthesized by heating Urea in Ar atmosphere at different heating time</b> <u>Lam Thi Hang, Hoang Thi Dieu Binh, Do Danh Bich, Nguyen Manh Hung, Dao Viet Thang, Pham Do Chung, and Le Thi Mai Oanh</u>	210
PO2.28	<b>Catalytic effect of wet metal surface for helium anion generation</b> <u>Ken-ichi Shudo, Masako Shindo, and Kyohei Tashiro</u>	211
PO2.29	<b>Nonlinear dynamic response of FG CNTRC circular cylindrical shell filled inside elastic foundations based on the third-order shear deformation theory</b> <u>Nguyen Dinh Duc and Hoang Thi Thiem</u>	212
PO2.30	<b>Nonlinear vibration analyses of functionally graded moderate thick toroidal shell segment within Reddy's third-order shear deformation shell theory</b> <u>Pham Minh Vuong and Nguyen Dinh Duc</u>	213
PO2.31	<b>Analysis of linear elastic fracture mechanics for cracked functionally graded composites by enhanced local enriched consecutive-interpolation elements</b> <u>Nguyen Dinh Du, Nguyen Ngoc Minh, Bui Quoc Tinh, and Nguyen Dinh Duc</u>	214
PO2.32	<b>Investigation on nonlinear dynamic response and free vibration of FG-CNTs reinforced composite truncated conical shells in the thermal environment</b> <u>Vu Thi Thuy Anh and Pham Dinh Nguyen</u>	215
PO2.33	<b>Static bending and vibration analysis of two-layer composite plate based on first shear deformation theory using finite element method</b> <u>Pham Van Vinh, Nguyen Hoang Nam, Do Van Thom, Nguyen Minh Khoa, and Nguyen Dinh Duc</u>	216
PO2.34	<b>Effect of sintering temperature on microstructure and physical properties of CuO-doped 0.96(K<sub>0.5</sub>Na<sub>0.5</sub>) NbO<sub>3</sub> - 0.04LiNbO<sub>3</sub> lead-free piezoelectric ceramics</b> <u>Phan Dinh Gio and Huynh Quang Viet</u>	217
PO2.35	<b>Analysis of unsymmetric FGM sandwich beams based on a new third-order shear deformation theory in high-temperature environment</b> <u>Do Van Thom, Nguyen Hoang Nam, Phung Van Minh, Tran Trung Thanh, Nguyen Van</u>	218

PO2.27

## A study of physical properties and photocatalytic ability of g-C<sub>3</sub>N<sub>4</sub> nanosheets synthesized by heating Urea in Ar atmosphere at different heating time

Lam Thi Hang<sup>1,2,\*</sup>, Hoang Thi Dieu Binh<sup>3</sup>, Do Danh Bich<sup>3</sup>, Nguyen Manh Hung<sup>4</sup>, Dao Viet Thang<sup>4</sup>,  
Pham Do Chung<sup>3</sup>, and Le Thi Mai Oanh<sup>2,3</sup>

<sup>1</sup>Faculty of Basic Sciences, Hanoi University of Natural Resources and Environment, 41A Phu Dien Road, North Tu Liem, Hanoi, Vietnam

<sup>2</sup>Center for Nano Science and Technology, Hanoi National University of Education, 136 Xuan Thuy Road, Cau Giay District, Hanoi, Vietnam

<sup>3</sup>Department of Physics, Hanoi National University of Education, 136 Xuan Thuy Road, Cau Giay District, Hanoi, Vietnam

<sup>4</sup>Hanoi University of Mining and Geology, Duc Thang ward, North Tu Liem District, Hanoi, Vietnam

<sup>\*</sup>Corresponding author's e-mail: lamhang289@gmail.com

The influence of heating time on polymerization processes of g-C<sub>3</sub>N<sub>4</sub> nanosheets in Ar atmosphere was investigated through X-ray diffraction (XRD) analysis, scanning electron microscopy (SEM), FTIR and UV-vis absorption, and photoluminescence (PL) techniques. Results show that the formation of crystal structure and physical properties of obtained g-C<sub>3</sub>N<sub>4</sub> nanosheets depended strongly on heating time. g-C<sub>3</sub>N<sub>4</sub> crystals with some degree of disorders were formed after heating at 550 °C for 1.5 h, however disorders disappeared after extended heating time to 2.5 h. The photocatalytic activity of g-C<sub>3</sub>N<sub>4</sub> nanosheets synthesized at different heating times was evaluated by the degradation of Rhodamine B (RhB) aqueous solution under Xenon lamp irradiation. The highest photocatalytic ability was observed at g-C<sub>3</sub>N<sub>4</sub> nanosheets synthesized at 550°C for 2.0 h, 95 % of RhB 10ppm was decomposed after 2h stirring in Xenon lamp irradiation.

**Keywords:** nanosheets, photocatalytic, heating time, g-C<sub>3</sub>N<sub>4</sub>.

### References:

- [1] F. Dong, L. Wu, Y. Sun, M. Fu, Z. Wu, and S. C. Lee, *J. Mater. Chem.* 21 (39), 15171 (2011).
- [2] G. Zhang, M. Zhang, X. Ye, X. Qiu, S. Lin, and X. Wang, *Adv. Mater.* 26 (5), 805-809 (2014).
- [3] L. Shi, T. Wang, H. Zhang, K. Chang, and J. Ye, *Adv. Funct. Mater.* 25 (33), 5360-5367 (2015).