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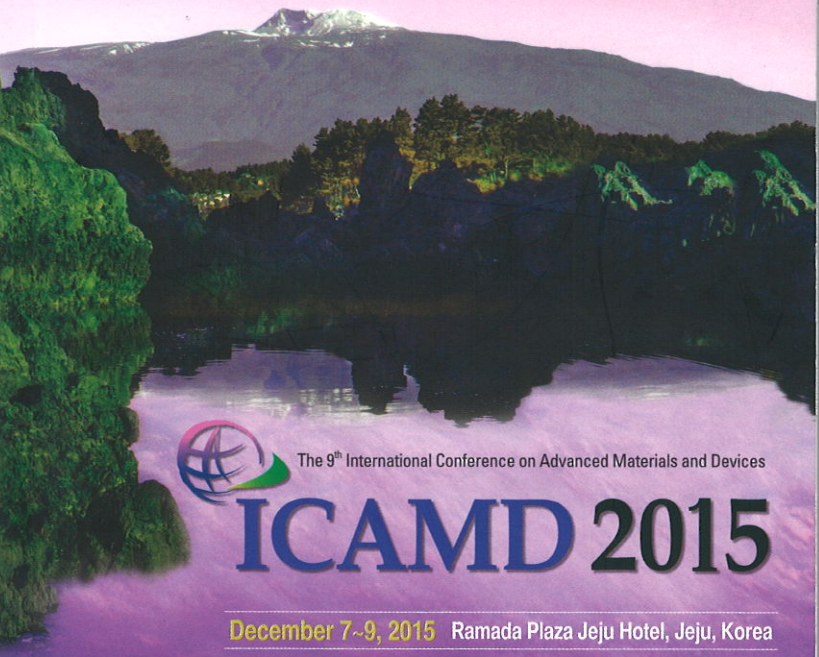

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Po-Na15-120
Broadband coherent perfect absorption of epsilon-near-zero tunable indium tin oxide thin films in the near infrared
Chang Kwon Hwangbo*, Tae Young Kim*, Md. Alamgir Badsha*, Junho Yoon*, Seonyoung Lee*, Wonyoung Kim*, Young Chul Jun**
*(*Inha University, **Ulsan National Institute of Science and Technology)*

Po-Na15-121
Nanostructure Formations by Irradiating Ions to Carbon Nanotubes on Polymer Substrates
Woongbin Yim, Huiseong Jeong, S.J. Park, Y.H. Ahn, Soonil Lee, Ji-Yong Park
(Ajou University)

Spin and Magnetism

Po-SP15-017
Self-heating effects of FeCo fluids by alternative magnetic fields
Ki Hyeon Kim, Jinu Kim, Joonsik Lee, Baekil Nam
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Po-SP15-018
Spin reorientation in Mg doped Y-type hexaferrite investigated by Mossbauer spectroscopy
Jung Tae Lim, Taejoon Kouh, Chul Sung Kim
(Kookmin University)

Po-SP15-019
Crystal and magnetic properties of $Na_{0.99}Li_{0.01}FeSO_4F$ by using Mossbauer spectroscopy
Hyunkyung Choi, Soyeon Barng, Sam Jin Kim, Bo Wha Lee**, Chul Sung Kim
*(*Kookmin University, **Hankuk University of Foreign Studies)*

Po-SP15-020
Magnetic properties of cathode material $Li_{0.8}Na_{0.2}FePO_4$ with Mossbauer spectroscopy
Byung Ug Ko*, Mun Hwan Kim**, Jung Chul Sur***, In-bo Shim*, Chul Sung Kim*
*(*Kookmin University, **Dongjin Semichem, ***Wonkwang University)*

WED-SP15-020

Magnetic properties of cathode material $Li_{0.8}Na_{0.2}FePO_4$ with Mössbauer spectroscopy

Byung Ug Ko*, Mun Hwan Kim**, Jung Chul Sur***, In-bo Shim* and Chul Sung Kim*

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We synthesized $Li_{0.8}Na_{0.2}FePO_4$ by solid state method. The mixtures of $FeC_2O_4{\cdot}N_2H_2O$, $NH_4H_2PO_4$, Na_2CO_3, and Li_2CO_3 were calcined at 300℃ for 4 hours under argon atmosphere and then pelleted. Finally theses mixtures sintered at 700℃ for 10 hours under argon atmosphere [1]. These samples were measured by x-ray diffractometer (XRD) and this XRD pattern was analyzed by Rietveld refinement method. One phase was $LiFePO_4$ and the other was $NaFePO_4$. The magnetic properties of these samples were measured by vibrating sample magnetometer (VSM) and Mössbauer spectrometer. The magnetization curves of zero-field-cooled (ZFC) and field-cooled (FC) were measured by VSM and indicated the Néel temperature (T_N). The Néel temperature (T_N) was determined to be 51 K by the magnetization curves and the Mössbauer spectrum. From measured the Mössbauer spectrum at 4.2 K, the magnetic hyperfine field (H_{hf}), electric quadrupole splitting (E_Q) and isomer shift (δ) values was determined to be H_{hf} = 130.50 kOe, ΔE_Q = 2.63 mm/s, δ = 1.25 mm/s. θ = 20.0˚, φ = 0.0˚, η = 0.74 and R = 2.98. At 295 K, the electric quadrupole splitting (E_Q) and isomer shift (δ) was determined to be ΔE_Q = 3.02 mm/s and δ = 1.24 mm/s. This isomer shift (δ) values meant that the state of Fe ions were ferrous (Fe^{2+}).

[1] Y. Zhu, R. Zhang, L. Deng, T. Yi, M. Ye, J. Yao, C. Dai, Metallurgical and Materials Transactions E **2**, 33 (2015).