



ICSM²⁰₁₂

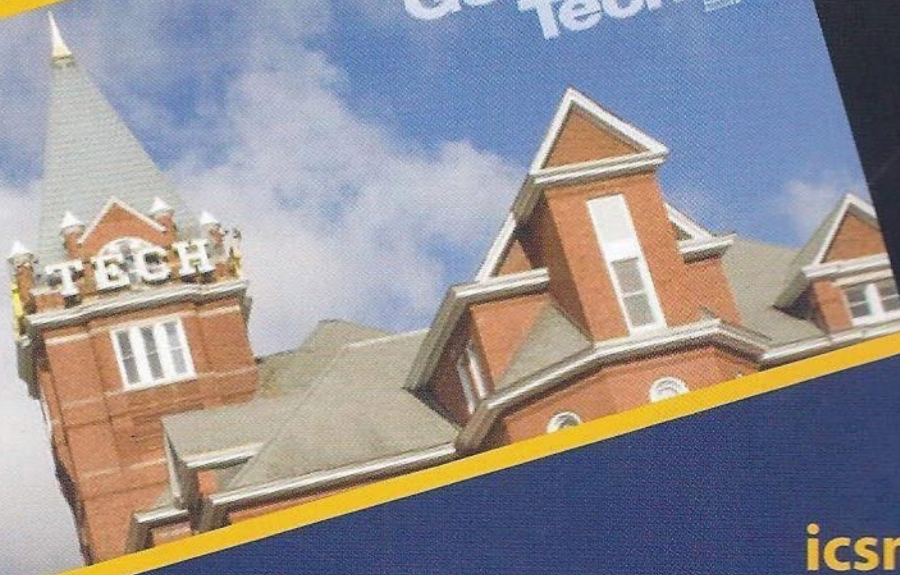
International Conference on Science
and Technology of Synthetic Metals

JULY 8 – 13, 2012

Atlanta, Georgia



Georgia
Tech



icsm2012.com

OPTOELECTRONIC CHARACTERISTICS OF π -CONJUGATED ORGANIC SMALL MOLECULES AND GRAPHENE COMPLEX SYSTEMS

J. S. Jung¹, M. R. Seo², H. S. Lee³, S. Jo⁴, S. W. Lee², J. Kim³, D. H. Choi⁴ and J. Joo¹

¹ Department of Physics, Korea University, Seoul 136-713 Korea,

jjoo@korea.ac.kr

² Department of Physics, Konkuk University, Seoul 143-701 Korea

³ Department of Physics, University of Incheon, Incheon 406-772 Korea

⁴ Department of Chemistry, Korea University, Seoul 136-713 Korea

We studied for nanoscale optical properties of tris(8-hydroxyquinoline) aluminum(III) (Alq3) nanoparticles (NPs) on single layered graphene using laser confocal microscope (LCM) photoluminescence (PL) system. Considerable reduction of PL intensity for Alq3 NPs was observed on the single layered graphene as substrate. The PL quenching of Alq3 NPs occurred by resonant energy transfer effect. We also fabricated organic thin film transistors (OTFTs) using the 5,5'-(2,6-Bis((4-hexylphenyl)ethynyl) anthracene-9,10-diyl) bis (ethyne-2,1-diyl) bis (2-hexylthieno[3,2-b]thiophene (HTT-ant-THB) and graphene composite materials as active layer. The photo-responsive and gate field-dependent charge transport characteristics of graphene/HTT-ant-THB hybrid materials-based OTFTs were studied depending on the graphene concentrations.

SYNTHESIS OF MOLECULAR PROBES FOR DETECTION OF PROTEIN AGGREGATES USING PET AND SPR

Leif B.G. Johansson, K. Peter R. Nilsson

Linköping University, Department of Chemistry, Linköping University, SE-581 83 Linköping, Sweden

leffe@ifm.liu.se

The formation and accumulation of protein aggregates give rise to distinct pathological conditions such as Alzheimer's and Parkinson's disease. To be able to study these diseases, molecular probes that selectively identify protein aggregates are needed. Luminescent conjugated oligothiophenes (LCOs) have been utilized for in vivo imaging of protein aggregates and herein we report the synthesis of an asymmetric functionalized thiophene backbone. This scaffold can be used to develop LCOs for several imaging techniques, such as PET or MRI, and LCOs that can be implemented as capturing reagent in novel sensitive assays for detection of protein aggregates.