

# Department of Chemistry and Biochemistry

School of Integrated Science and Humanity

## Seminar Announcement

$\pi$ -Electron conjugated materials for therapeutic imaging, sensing, and delivery

**Dr. Joong Ho Moon**

Associate Professor

Department of Chemistry

Florida International University



Date : Friday, September 20, 2019

Time : 11:00am - 12:00pm

Buildings, AHC3-205 MMC (Live), MSB-105 BBC

*The event is free and open to the public.*

### Abstract:

My research at FIU has been focused on biological and biomedical applications of p-electron conjugated polymers (CPs) and conjugated oligomers (COs). Owing to their excellent properties, CPs have been traditionally used for various electronic, photonic, and sensing applications in non-aqueous environments. By controlling aggregation of non-aqueous soluble CPs in aqueous environments, my group has developed highly bright and photostable conjugated polymer nanoparticles (CPNs) and used them for fluorescent live-cell imaging and small interfering RNA (siRNA) delivery. Since the pioneering live-cell applications of CPs, my research group has been working on novel design and synthesis of functional conjugated materials for optimized and tailored cellular applications. In the seminar, recent research progress in labeling, sensing, and delivery of biological/biomedical interests will be discussed.

### Bio:

Dr. Moon received his Ph.D. in Materials Chemistry from Pohang University of Science and Technology (Pohang, South Korea) in August 1999. As a postdoctoral associate at MIT, Dr. Moon studied the effect of unique surface structures of polymer brushes on chemical sensing under Prof. Timothy M. Swager. In 2001, Dr. Moon joined the Nomadics in Cambridge, MA (now merged to FLIR). Dr. Moon actively participated to commercialize Prof. Swager's explosive sensing technology by establishing various fabrication and modification methods of amplifying fluorescent polymers. After seven years of industrial experience, Dr. Moon joined the Department of Chemistry and Biochemistry at FIU as an assistant professor and was tenured and promoted to an associate professor at 2014. Dr. Moon's research has been supported by major federal and international grants including NIH, NSF CAREER, and KEIT (funding from Korea, PI). He has served as a panelist reviewer for NSF BMAT (2014-), NIH BST (2019-), and NIH GDD (2019-). He also served as an expert consultant on patent litigation between big life science companies (2019). His recent discovery of antimicrobial polymers was recognized by Colgate-Palmolive as a potential preservative for household or personal care products. FIU and Colgate finally finalized a research agreement and a new research project to evaluate the antimicrobial polymer in Colgate products is expected to start from Oct. 2019. Since tenured in 2014, he graduated five Ph.D. students. All of them secured professional jobs including Intel (Drs. Vokata and Twomey), Arkansas State University (Dr. Ahmed), a patent law firm (Dr. Mendez), and Miami-Dade College (Dr. Manandhar). Currently, he is mentoring six Ph.D., three undergraduate, and one high school students.

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