



The Chinese University of Hong Kong

Department of Biomedical Engineering



Topic : **Metal-organic coordination compounds for biomedical applications**

Speaker : Dr. Sebastian Beyer

Date : 19 March 2019 (Tuesday)

Time : 3:30 – 5:00pm

Venue : Room 215, William M W Mong Engineering Building



Abstract

Having received his formal education in chemistry as well as biomedical engineering, the research portfolio of Dr. Sebastian Beyer is positioned at the interface of these disciplines. His dissertational work focused on polyelectrolyte self-assemblies and their physico-chemical properties and was applied to create microcapsules and hydrogel beads for diagnostics and cell delivery. During his first postdoctoral stint, he sought to gain in-depth biological understanding of physiological systems such as the microvasculature. Utilizing 3-dimensional microvascular networks in microfluidic devices, he studied microvessel stabilization effects by macromolecular crowding. His acquired expertise in 3-dimensional cell cultured also enabled him to establish a functional in vitro system to study angiogenic processes during wound healing in vitro. Going back to his “chemistry roots”, Dr. Beyer studied the formation and physico-chemical properties of metal-organic frameworks (MOFs) using classical and advanced synchrotron analytical methods. Although the performed research had a coordination chemistry focus, the wealth of interdisciplinary experience allowed him to see the potential of these materials for biomedical application. In particular, he developed sensor systems for biomedical markers and hazardous substances. His current and future work focuses on MOF-based colloidal carriers for biomacromolecules and envisions creating biomedical implants that promote tissue healing and repair.

Biography

Dr. Sebastian Beyer received his first professional qualification as trained chemist in 2003 and graduated from Chemistry studies at the University of Applied Sciences of Gelsenkirchen, Germany, in 2008. He subsequently joined the Department of Biomedical Engineering (National University of Singapore, NUS) to pursue his dissertational work on polymer self assembled structures. Dr. Beyer was able to secure a PhD scholarship from the Graduate Program in Bioengineering (GPBE) and was later admitted to the top-tier PhD programme, the NUS Graduate School for Integrative Sciences and Engineering (NGS). He then won the competitive SMART Scholars postdoctoral fellowship in 2012. This allowed him to pursue postdoctoral work in 3D microfluidic cell culture and microvascular biology at the Singapore MIT-Alliance for Research and Technology from 2012 till 2015. Following that, Dr. Beyer was able to secure the competitive postdoctoral Adolf Martens Fellowship from the Federal Institute for Materials Research and Testing (BAM), Berlin. The postdoctoral stint at BAM (2016-2018) allowed complementing his expertise with experience in coordination chemistry and synchrotron analytical methods. Dr. Sebastian Beyer joined the Institute for Tissue Engineering and Regenerative Medicine (iTERM, Chinese University of Hong Kong) in March 2018 for the opportunity to develop a novel research direction based on his diverse expertise. Dr. Sebastian Beyer secured funding in Singapore and Germany. His research has lead to 21 published research articles, two book chapters and 3 independent patent families. A good track record of University level teaching and student mentoring, both in Singapore and Germany are rounding his academic profile.

***** ALL ARE WELCOME *****

For enquiries, please contact Ms. Joyce Chan, Department of Biomedical Engineering at 3943 8278