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Title:

Ultrabright Fluorescent Silicon Nanomaterials for pH Sensing and Bio-Medical Imaging Applications

Abstract:

Fluorescent materials have been introduced as promising materials in recent years, however, most of these suffer from low photoluminescence (PL) quantum yield (QY). A facile one-step method has been developed for ultrabright silicon nanomaterials (SiNPs) with nearly 100% PLQY. These SiNPs also demonstrated outstanding pH-sensitivity and shown a linear response from pH 4.0 to 7.0, which has been used to construct a sensing platform for monitoring pH changes in intracellular and zebrafish with remarkable imaging capability, based on its excellent PLQY, PL stability, biocompatibility, and pH sensitivity. The SiNPs could be potentially employed as multifunctional materials for pH monitoring and in-situ imaging for bio-medical applications.

Biography:

Dr. Yufei Liu is currently a professor in College of OptoElectronic Engineering, Chongqing University. He was awarded the B.S. in Physics, M.Eng. in Microelectronics and Solid State Electronics, and Ph.D. in Electronic Engineering, from Peking University, Shanghai Institute of Microsystem and Information Technology CAS, and Heriot-Watt University, in 2003, 2006 and 2011, respectively. Yufei joined Chongqing University in 2014, after his position as Research Fellow in Swansea University and ERC Research Fellow in Imperial College London. He has been the PI for National Key R&D Program of China (MOST Digital Bio-Medical Equipment call) and the Co-PI of National Key R&D Program of China (MOST China-UK Newton Fund call). His current research interests are Micro/Nano Fabrication & Integration Technology, Intelligent Sensing and Fluorescent Molecular Detection.