

第13回
分子システム
デバイス
セミナー

九州大学大学院 博士課程教育リーディングプログラム

分子システムデバイスコース

Advanced Graduate Course on Molecular Systems for Devices



Prof. Chanjoong Kim

Chemical Physics Interdisciplinary Program
Liquid Crystal Institute,
Kent State University, USA

Time & Date; Thursday, 20th June, 2013, 15:00-16:30

Venue; Ito campus, Open Learning Plaza 207 (AMS lecture room1)

Novel Non-Bleaching Photoluminescent Magnetic Nanoparticles

Magnetic nanoparticles have been used in biomedicine applications such as a contrast-enhancing agent for the magnetic resonance imaging (MRI), external magnetic field manipulation, extracellular and intracellular transportation, and hyperthermia treatment. We have developed a new type of photoluminescent magnetic nanoparticles (PL-MNPs) produced by a very simple process. A PL-MNP consists of an ordinary magnetic nanoparticle core and a non-toxic polymer shell. They are photoluminescent without any addition of fluorophores, such as quantum dots or organic fluorescent dyes that can be toxic and easily photobleached, respectively. Remarkably, the photoluminescent intensity of PL-MNPs is maintained at the level of 85% of an initial intensity even after more than 10 hours of continuous light exposure. The biocompatibility of the nanoparticles was evaluated using in-vivo tests on mice including DNA fragmentation, micronucleus formation, and sperm abnormalities. The in-vivo biocompatibility tests show extremely low toxicity of PL-MNPs compared to the control. This work provides a low-cost, bio-safe, non-bleaching alternative of conventional fluorescent magnetic nanoparticles which covers a wide range of applications, from multi-modality bio-imaging to biomedical therapeutics.

■お問い合わせ先

分子システムデバイス国際リーダー教育センター支援室

E-mail : office[at]molecular-device.kyushu-u.ac.jp

TEL : 092-802-2911 FAX : 092-802-2912

〒819-0395 福岡県福岡市西区元岡 744

九州大学伊都キャンパス ウエスト 2号館 627号室

主催 : 九州大学分子システムデバイス国際リーダー
教育センター

