

DAIILAB - CAFE

Series - 022

Date & Time – September 28, 2017/ 15:30 h

Venue - Central 5-41; 2F (Conference Room # 1)

Speaker – Adarsh Sandhu, Jaiyam Sharma, Ryoji Yukino

Title: **Biosensing with magnetic nanoparticle labels**

Affiliation – University of Electro-Communications, Tokyo.

E-mail: sandhu@uec.ac.jp; jaiyam@uec.ac.jp; yukino@uec.ac.jp



Abstract

Adarsh Sandhu will give the following overview of this group's research on exploiting the physical properties of magnetic nanoparticles as 'magnetic labels' for medical diagnostics: (a) Hall effect biosensors for detecting magnetic labels; and (b) medical diagnostics systems based on optical imaging of fluorescent magnetic nanobeads, with potential applications including rapid inspection of tissue during biopsy procedures by surgeons and pathologists.

Jaiyam Sharma will describe a biosensing platform based on fluorescent magnetic nanoparticles incorporating micro-coils to reduce non-specific interactions and using digital image processing for quantification of target concentrations.

Ryoji Yukino will describe the unique "nano-grating guided-mode resonance" biosensing system based on optical waveguides and functionalized magnetic nanoparticles.

References

1. A. Sandhu et. al., 'Biosensing: new probes offer much faster results', *Nature Nanotechnology* 2, 746 (2007).
2. J. Sharma et. al., Fast and sensitive medical diagnostic protocol for magnetic washing and optical detection of fluorescent magnetic nanobeads, *Sensing and Bio-Sensing Research* 9, 7 (2016).
3. R. Yukino et. al, "Magnetic nanoparticle-based nano-grating guided-mode resonance biosensors." In *Magnetics Conference (INTERMAG), 2017 IEEE International*, pp. 1-1. IEEE, 2017.

Department of Biotechnology
Ministry of Science and Technology
Government of India
DBT

National Institute of
Advanced Industrial Science
and Technology
AIST

DBT - AIST International Laboratory
for Advanced Biomedicine

DAILAB

Classroom for Advanced & Frontier Education
CAFE

National Institute of Advanced Industrial Science & Technology, Japan



University of Sri Jayewardenepura, Sri Lanka



IIT-Delhi, India

Hanyang University, South Korea

Series 22

Speakers: Jaiyam Sharma and Ryoji Yukino

Topic: Biosensing with magnetic
nanoparticle labels

Date: 28th Sept 2017 (15:30-16:30 hours JST)

Host: DAILAB@AIST, Japan

Jaiyam Sharma was
offered wild-card entry
to CAFÉ PLUS 2018 !



Brawijaya University, Indonesia



Thanks for participation!