第 11 回研究科セミナー（物質化学フロンティア研究領域）

テーマ

「バイオセンシングと診断のためのオルガノシリカナノ粒子」

Organosilica Nanoparticles for biosensing and diagnosis applications

講演者：JSPS Post-Doctoral Research Fellow

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National Institute for Material Science（NIMS），
Research Center for Macromolecules and Biomaterials

日　　時：令和7年9月3日（水）15：00～16：00

場　　所：マテリアルサイエンス研究棟4棟8階　中セミナー室

講演要旨：

Biosensors and diagnosis tools have played a key role in the global healthcare market, where being able to monitor and quantify key biological events has led to better understand of cellular activity, drug development, and other biological functions. Because of that, they have been growing interest in developing new and novel materials for biosensing applications.

Organosilica nanoparticles has recently gained interest as a platform for developing future diagnosis tools. Similar to their conventional counterpart – silica nanoparticles, these materials are an attractive material for biosensing applications – due to their low cost, highly tunable and well-defined chemistry, and relatively non-toxic and bioinert. However, the added advantage of organosilica is their ease of chemical modification, while their chemical structure also offers unique properties for diagnostic applications.

In this seminar, I will be discussing the use of organosilica nanoparticles and how they can be used as a platform for real-time biosensors. Here, I will highlight their use as both pH and oxygen-responsive fluorescent biosensors, where they could be used to monitor real-time dynamic changes in biological systems with highly sensitive and accuracy.

講演者略歴：

Dr. Gabriel Huynh is currently a JSPS Postdoctoral Research Fellow based at the National Institute for Material Science（NIMS）in Tsukuba, Japan, under the supervision of Professor Chiaki Yoshikawa. Previously, Dr. Huynh completed his doctoral studies at Monash University in Australia in 2022, under the supervision of Associate Professor Simon Corrie on developing nanoparticle-based biosensors; before starting as a CERC Postdoctoral Fellow at the Commonwealth Scientific Industrial and Research Organization（CSIRO）under the supervision of Dr. Helmut Thissen. Since then, Dr. Huynh has published in perpetual journals in the field of bionano-interactions（ACS Applied Materials and Interfaces – IF 8.9）and biosensing（ACS Sensors – IF 9.1）

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