

## Zinc oxide nanostructures: fabrication and synthesis, characterizations and applications

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**日 時: 平成29年9月11日(月) 14:00~15:30**

**場 所: マテリアルサイエンス系研究棟Ⅳ棟8階 中セミナー室**

### 講演要旨:

A great economic progress in white LEDs and photovoltaic (PV) markets is possible thanks to the use of lanthanide-free phosphors that are supposed to convert UV light into visible one, thanks to the so-called “down-shifting” process. ZnO nanoparticles (NPs) have aroused a growing interest, since due to the size reduction, they possess a variety of intrinsic defects (Zn vacancies and O interstitials). ZnO NPs naturally absorb the UV light thanks to a wide band gap of about 3.37 eV and it can also emit visible light, from yellow to red, depending on the nature of the crystalline and surface defects involved in the emission process. This is. In the talk, we will describe the physical and the chemical fabrication method of non-doped or doped ZnO NPs, their morphological and optical characterization, as well as their application as the light emitters in LEDs and the energy converters solar cells.

A part of the presentation will be also dedicated to the application of zinc oxide nanowires in optical gas sensing.

### 講演者略歴:

2000 Master and engineer degree in Material Science and Engineering, Wroclaw University of Technology, Poland  
2003 Ph.D. in Optics and Material Science, Université d'Angers, France  
2003-2005 Postdoctoral Fellow, Commissariat à l'Energie Atomique (CEA) Saclay, Paris, France  
2005-2006 Assistant Professor at Université de Technologie de Troyes (UTT), France  
Since 2006 Associate Professor, Institut National des Sciences Appliquées de Lyon, Department of Material Science and Engineering  
2006 Invited Professor, Thamassat University, Bangkok, Thailand  
2009 Invited Professor, KEIO University (Global COE Program)  
2014 Invited Professor, The University of Tokyo, JSPS Frontier of Science (FoS) Followup Program  
2015 Invited Professor, The University of Tokyo, French Explora Pro Program