

2024

7.10 (wed.) 12:10 ~ 12:50

12:10-12:15

◆ Introduction

12:15-12:40

◆ Seminar  
(Presentation)

12:40-12:50

◆ Q&amp;A

Online  
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Supported by Kyushu University, Q-AOS

# Development of Dendrimer Based Luminescent Materials for Solution-Processable Organic Light Emitting Diodes

Chair: Assoc. Prof. Kim SCHUMACHER (Coordinator of Q-AOS)



Key Words

OLED

Dendrimer

Luminescent materials

Associate Professor **Ken ALBRECHT**

Institute for Materials Chemistry and Engineering



Prof. Dr. Albrecht is an Associate professor (PI, tenured since 2023) at Institute for Materials Chemistry and Engineering, Kyushu University since 2019. He received his doctoral degree from Keio University in 2010. In 2010 I was promoted as specially appointed assistant professor at the Chemical Resources Laboratory, Tokyo Institute of Technology. In 2012, promoted as assistant professor at the same institute. From 2016, he served concurrently as group leader of Yamamoto Atom Hybrid Project until 2019. From 2018 he was concurrently appointed as JST-PRESTO Researcher until 2022. He established his own laboratory in Kyushu University since 2019.

In the meantime, he received the 61st Polymer Research Recital (Kobe), Young Scientist Lecture Award in 2015. In 2016, he received Award for Encouragement of Research in Polymer Science from The Society of Polymer Science, Japan. In 2017 he received Young Scholar Lecture of CSJ (Chemical Society of Japan) 97th annual meeting. In 2023, he received the Young Scientists' Award, The Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (MEXT), Japan

His group conducts research going from the design and preparation of new organic (dendrimer) materials for organic electronics, luminescent materials, nanoparticle synthesis, and supramolecular chemistry. He is also working on organic active materials for Na-ion batteries, and development of electrostatic catalysis reactions. These topics are focused on designing organic materials related to photonics and electronics. From 2024, we have been selected for the JST-ASPIRE for rising scientists and are actively promoting international joint research, mainly with U.K. and Germany.

Dendrimers are polymers with a branched structure that differs from common polymers. By utilizing dendrimers, it is possible to create highly efficient light-emitting materials suitable for fabricating organic light-emitting diode (OLED) devices by printing or other solution processes. OLED displays, such as smartphone displays, have become ubiquitous in our daily lives, but they are currently fabricated by expensive vacuum deposition methods. If this can be achieved by printing or other solution processes, it is expected that the energy consumption and other costs will be greatly reduced. In this seminar, I will introduce dendrimer-type light-emitting materials for OLED applications.