



IBS Center for Molecular Spectroscopy and Dynamics

Seminar

■ **SPEAKER**

Dr. Christoph Schnedermann (University of Cambridge)

■ **TITLE**

Capturing the Transport Dynamics in Heterogeneous Energy Materials with Optical Microscopy

■ **ABSTRACT**

Energy materials are at the core of the ongoing energy revolution. Yet, their advancement is stalled by intrinsic heterogeneities which limit performance, safety and lifetime of end-user applications. Here, I will showcase our recent efforts to unravel such heterogeneities on the nanoscale using optical microscopy techniques. I will first discuss how we employ ultrafast laser pulses to track the three-dimensional charge-carrier transport in optoelectronic materials with sub-15 fs temporal resolution – demonstrated on the singlet fission material pentacene [1]. In a second application, I will highlight how we can translate these imaging concepts to capture for the first time the process of ion intercalation in an operating Li-ion battery on the single particle level [2,3].

References

[1] Ashoka, A. et al. arXiv:2109.01551 (2022)

[2] Merryweather, A. Nature 594, 522–528 (2021) arXiv:2011.10537

[3] Merryweather, A. arXiv:2111.11997 (2022)

■ **DATE AND VENUE**

April 19, 2022 (Tuesday, 17:00 - 18:00)
Virtual Seminar

■ **LANGUAGE**

English

■ **INVITED BY**

Dr. Jong Min Lim