

Joint CQSE and CASTS Seminar

2019
May. 17, Friday

TIME May. 17, 2019, 14:30 ~ 15:30
TITLE Ultrafast optomagnetism and optospintronics
SPEAKER Prof. Yu-Miin Sheu
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Abstract

More than 100 years ago, the discovery of photoelectric effect not only has been awarded for the Nobel Prize, but also has been applied to many modern technologies since then. Spin, the inherent quantum property of electrons discovered nearly 100 years ago in Stern- Gerlach experiment, while earning practical application from the Rabi's discovery of nuclear spin resonance, remains as the most challenging properties to control in condensed matter physics. Despite that photon carries angular momentum so that photomagnetic effects could be a straightforward result to be expected in condensed matter physics, strong spin exchange interaction in magnetic materials, scattering in conducting materials, negligible spin-orbit coupling in many materials and so on are limiting factors. In this presentation, I will discuss our discovery of photomagnetic effect in magnetic materials which are practical for the application of optomagnets and optospintronics. My particular focus will be on the creation of picosecond optomagnets in a antiferromagnet, which is the most useless magnetic material for application, yet, has abundant spin configurations, waiting for controllability to be unveiled.

