

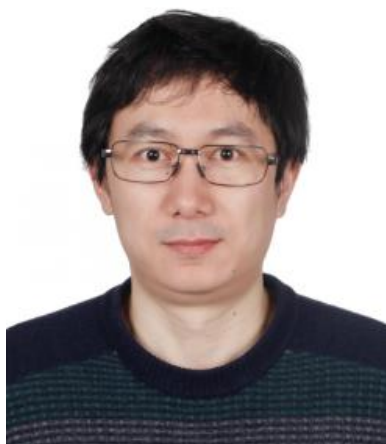


Weekly Seminar

Ultrafast laser-induced phase transition in electronic materials

Lexian Yang

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Time: 4: 00 pm, Feb. 27, 2019 (Wednesday)

时间: 2019年2月27日 (周三) 下午4:00

Venue: Room W563, Physics building, Peking University

地点: 北京大学物理楼, 西563会议室

Abstract

With the unique capability of tracking the dynamic evolution of electronic structure in the time domain, time- and angle-resolved photoemission spectroscopy (trARPES) has become a more and more important research technique in condensed matter physics. In this talk, I will introduce our recent work in correlated materials. In iron based compounds, we observe ultrafast coherent modulation of the electronic structure and possible metastable states. In the canonical charge density wave materials $\text{Rb}_{0.3}\text{MoO}_3$, we observe ultrafast laser induced melting of the long-range order, which precedes the response of coherent nuclear atoms. We argue that the incoherent lattice phonons play decisive role in the melting of the charge-density wave in $\text{Rb}_{0.3}\text{MoO}_3$, which should be generically considered in the study of laser induced phase transitions.

References:

[1] L. X. Yang et al., Phys. Rev. Lett. 102, 107002 (2014).

About the speaker

Lexian Yang graduated from Fudan University with a PhD degree in physics. He worked as a postdoctoral researcher with Humboldt fellowship in Kiel University from 2011 to 2014. He became an assistant professor in Physics department, Tsinghua University in 2016 and is an associated professor since 2019. His main research interest is the electronic structure of quantum material on ultra-short time scale and microscopic spatial scales.