Special Seminar

Light control of correlated electron systems

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Time: 16:00pm, April 26, 2016 (Tuesday)

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Venue: Room W563, Physics Building, Peking University

地点：北京大学物理楼 西563会议室

Abstract

Optical spectroscopy is one of the most important techniques in condensed matter physics. Light control is a new branch of time-resolved optical spectroscopy. Short laser pulses tuned to the mid-infrared or even lower energies are used to directly excite specific modes in the solids. In this way, highly unconventional states, which are inaccessible under equilibrium conditions, can be achieved. Combining light control with ultra-broadband transient optical spectroscopy, we are able to detect the time-dependent electrodynamics of the light-stimulated state over the whole far-infrared region. In this talk, I will present two applications:
1) light-induced transient superconductivity in bilayer cuprate superconductors.
2) phonon-driven insulator to metal transition in nickelate heterostructures.
References:
[1] S. Kaiser, C. R. Hunt, D. Nicoletti et al., Phys. Rev. B 89, 184516 (2014).
[2] W. Hu, S. Kaiser, D. Nicoletti et al., Nature Materials 13, 705 (2014).
[3] A. Caviglia, R. Scherwitzl, P. Popovich et al., Phys. Rev. B 108, 136801 (2012).
[4] W. Hu, Phys. Rev. B 93, 161107(R) (2016).

About the Speaker

Wanzheng Hu received her PhD degree in 2010 from Institute of Physics, Chinese of Sciences. She was a postdoc from 2010 to 2012, and then a research scientist in Max Planck Institute for the Structure and Dynamics of Matter in Hamburg. She developed the mid-infrared pump, ultra-broadband THz probe technique, which led to the discoveries of the high-temperature transient superconductivity in underdoped YBa2Cu3O6+d, and the phonon-driven insulator-metal transition in nickelate heterostructures.