



复旦大学物理系 Colloquium

Time: 14:00, Tuesday, 2024.12.17

Location: C108, Jiangwan Physics Building

Attosecond technologies towards PHz-scale solid state physics

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Abstract: Attosecond time-resolved spectroscopy based on pump-and-probe configurations using higher-order harmonic sources has evolved in two main directions. One is the attosecond-pump and attosecond-probe configuration, and the other is the few-cycle light-pulse-pump and EUV attosecond-pulse-probe configuration, which has been extended to solid-state systems. In this talk, we introduce our recent development of three types of EUV high-order-harmonic-based spectroscopic and source technologies towards an application of the few-cycle-pulse-pump and attosecond-probe spectroscopy to the near infrared (NIR) lightwave-driven phenomena. Our efforts pioneer the PHz-scale solid-state physics, which will be a next major challenge to control the quantum degree of freedom on the time scale shorter than typical decoherence and scattering time of electron in solid state materials at room temperature in attosecond science.



Biography: Katsuya Oguri received a B.S., M.S., and Ph.D. from the University of Tokyo in 1996, 1998, and 2005. In 1998, he joined NTT Basic Research Laboratories. Since 1998, he has been engaged in the study of high-power femtosecond-laser-based x-ray sources and their application. He is currently studying extreme laser physics and its application to PHz technology covering ultrashort pulse laser and attosecond science, ultrastable laser and optical clock technology, and optical-frequency comb. He has been a guest researcher at RIKEN since 2015 and an associate professor at University of Tsukuba Graduate School Cooperative Graduate School System since 2020. He received the 26th Japan Society of Applied Physics Japanese Journal of Applied Physics (JJAP) Best Original Paper Award in 2004 and the 18th Japan Society of Applied Physics JJAP Young Scientist Presentation Award in 2005. He received the 32nd Laser Society of Japan Best Original Paper Award in 2008. He received the Best Poster Presenter Award at International Symposium on Ultrafast Intense Laser Science XVI in 2017.