



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
SEMINAR

Nondipole Effects in Strong-Field Ionization

by

Dr. Kang LIN (林康博士)
Department of Nuclear Physics
Goethe University, Germany

Date: November 2, 2022 (Wednesday)

Time: 2:00 - 3:00 p.m.

Zoom link: <https://bit.ly/3Nmd8wV>



ALL INTERESTED ARE WELCOME

Abstract

Ultrafast lasers are a powerful and versatile tool towards the control of electron dynamics, which is one of today's grand challenges of atomic and molecular physics. On this route however, the vast majority of the works so far have neglected the influence of magnetic component of the light field and of its spatial dependence. Including these important effects beyond the so-called electric dipole approximation for understanding light-matter interactions is one of the current frontiers of physics with short laser pulses. In this talk, I will introduce recent progresses we made along this frontier. It is found that the energy of the above-threshold ionized photoelectrons shows a strong dependency on its emission direction due to the nondipole contribution [1]. However, this only holds for low-energy electrons below the classical cutoff. Beyond this cutoff, the large-angle rescattering of the electrons strongly alters the partitioning of the photon momentum between electron and ion [2]. As a result, the sensitivity of the nondipole shift can serve as a powerful tool to investigate electron correlation [3].

References

- [1] K. Lin *et al.*, Science Advances 8, eabn7386 (2022).
- [2] K. Lin *et al.*, Phys. Rev. Lett. 128, 113201 (2022).
- [3] K. Lin *et al.*, Phys. Rev. Lett. 128, 023201 (2022).

Enquiries: 3943 6303