

Engineering the electronic structure and symmetry of black phosphorus by ultrafast lasers

Shuyun Zhou

Department of Physics, Tsinghua University

Email: syzhou@mail.tsinghua.edu.cn

Time-periodic light-field can be used to dress the electronic states of quantum materials, resulting in transient modifications of the electronic structure with light-induced emergent phenomena. In this talk, I will present our recent progress on the Floquet engineering of black phosphorus by time- and angle-resolved photoemission spectroscopy (TrARPES). In particular, experimental results on the transient electronics structure engineering upon below-gap pumping will be presented. Moreover, I will also show some experimental results to demonstrate how the symmetry of the photon-electron hybrid system can be manipulated by the light field.