

Abstract Submitted
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Photoemission signature of excitons AVINASH RUSTAGI, ALEXANDER KEMPER, North Carolina State University — Angle resolved photoemission spectroscopy (ARPES) is used to investigate the properties of a system both in and out of equilibrium. While the tools of many body theory has successfully explained the electronic spectra modifications due to interactions, the signatures of electron-hole bound states i.e. excitons in ARPES measurements requires further study. We theoretically study the signature of excitons on the equilibrium ARPES spectra by evaluating the photoemission intensity of electron from the electron-hole bound state. We apply our results to a simple two-band model for transition metal dichalcogenides (TMDCs) with exciton states described by hydrogenic orbitals and study the effects of exciton Bohr radii and the bound state wavefunction on the photoemission intensity.

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