

Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Nonlinear Optical and Excitonic Effects in Two-Dimensional Transition Metal Dichalcogenides WANG-KONG TSE, Los Alamos National Laboratory — We present a theory for coherent optics in two-dimensional transition metal dichalcogenides. Using the density matrix formalism, we derive the kinetic equations for the interband polarization and band population distributions, and study the regime of strong optical fields where Coulomb interaction effects are small and the regime of weak optical fields where excitonic effects are important. In particular, the influence of the optical Stark effect on the excitonic properties is studied within our theory. We also address the excitonic effects of Coulomb interaction on the optical conductivity and compare our results with that of graphene.

Wang-Kong Tse
Los Alamos National Laboratory

Date submitted: 14 Nov 2014

Electronic form version 1.4