Manipulating spin-orbit coupled electrons in MoS2[1] EDWARD ARIS FAJARDO, ROLAND WINKLER, Northern Illinois University — Using group theory, we derive the invariant expansion for the effective Hamiltonian of the electron states near the K points of monolayer MoS_2. Our approach fully includes both spin-orbit coupling and the effect of perturbations such as external (or built-in) electric and magnetic fields and strain. It provides a systematic strategy for manipulating the spin-orbit coupled electron dynamics in MoS_2 and other transition metal dichalcogenides.

Edward Aris Fajardo
Northern Illinois University

Date submitted: 11 Nov 2016   Electronic form version 1.4