

Abstract Submitted
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Spin-orbit coupling in bulk and low dimensional III-V zinc-blende and wurtzite semiconductors from first principles¹ MARTIN GMITRA, JAROSLAV FABIAN, University of Regensburg, Germany — We have performed systematic investigations, using first-principles methods, of spin-orbit coupling effects in bulk III-V zinc-blende and wurtzite GaAs, GaSb, InAs, and InSb semiconductors. We have investigated the spin-orbit effects of the surface states of these semiconductors in different technologically important growth directions. Based on symmetry-derived Hamiltonians we have extracted realistic spin-orbit parameters important for spin relaxation, spin transport, optical orientation, and semiconductor-based Majorana states studies.

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