**Spin-orbit coupling in GaN/AlGaN wurtzite quantum wells**[1] PO-
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EGUES, University of São Paulo — We investigate the spin-orbit coupling for elec-
trons in wurtzite quantum wells with two subbands [1]. By folding down the $8\times8$
Kane model, accounting for the s-pz orbital mixing [2, 3] absent in zincblende struc-
tures, we derive an effective $2\times2$ Hamiltonian for the conduction electrons. In this
derivation we consider the renormalization of the spinor component of the conduc-
tion band wave function, which is crucial to properly obtain the corresponding spin-
orbit couplings. In addition to the Rashba-type term arising from the bulk inversion
asymmetry of the wurtzite lattice, we obtain the usual linear in momentum Rashba
term induced by the structural inversion asymmetry of the well and; interestingly,
we also find a new Rashba-like contribution. The spin-orbit coupling parameters are
obtained via a self-consistent calculation. For completeness, the Dresselhaus term
is also included in our calculation.

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