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True LDA Band Gaps of Wurtzite and Cubic Indium Nitride D. BAGAYOKO, G.L. ZHAO, L. FRANKLIN, Department of Physics, Southern University and A&M College,Baton Rouge, Louisiana 70813 — We report the calculated band gap of wurtzite and cubic indium nitride (InN). Our ab-initio computations employed a local density approximation (LDA) potential and the linear combination of Gaussian orbital (LCGO) formalism. The implementation of the Bagayoko, Zhao, and Williams (BZW) method led to *true LDA band gaps of 0.88 eV and 0.65 eV for wurtzite and cubic indium nitrides*, respectively. When available, recent experimental electronic structures, density of states, band gaps, and effective masses agree with our findings. We discuss the need for the BZW approach in LCAO calculations purporting to implement the initial, density functional theory that is concerned with the description of *only the ground state.*

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