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Al-doping of ZnO (AZO) via Electrochemical Deposition: An Exploration of Optoelectronic Applications STEPHAN JACKOWSKI, HONGTAO SHI, Sonoma State University — Zinc Oxide (ZnO) is a semiconductor of group II-VI with numerous applications due to its wide band gap, good transparency, high electron mobility, and low cost. Tuning the band gap via doping enables an array of applications, specifically in optoelectronics. A 1:1 solution of zinc nitrate hexahydrate and hexamethylenetetramine (HMT) was used in an electrochemical deposition of ZnO on silicon substrates. After introducing aluminum nitrate to the solution and varying deposition parameters, characterization techniques including scanning electron microscopy, energy-dispersive X-ray spectroscopy, and photoluminescence spectroscopy were implemented to quantify film properties.

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