

Abstract Submitted
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Thin film growth of the p-type semiconductor BiCuOSe by pulsed laser deposition¹ PAUL NEWHOUSE, PETER HERSH, DOUGLAS KESZLER, Dept. Chemistry, Oregon State University, JANET TATE, Dept. Physics, Oregon State University — Thin films of p-type semiconductor BiCuOSe were prepared by pulsed laser deposition onto fused SiO₂ and single crystal MgO and SrTiO₃ substrates. Their electrical and optical properties were measured. Ca-doped films prepared on MgO or SrTiO₃ substrates are *c*-axis oriented, and show high electrical conductivity of ~ 200 S/cm and high reflectivity of 30-50% from ~ 0.4 - 4 μm . Single phase polycrystalline films on fused SiO₂ show lower conductivity of ~ 9 S/cm and reveal a weak transmission turn on near 950 nm (1.3 eV) indicative of the band gap absorption. BiCuOSe is isostructural with the transparent p-type conductor LaCuOSe, but forms at much lower temperatures. Possible applications include use as a solar cell absorber.

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