Abstract Submitted
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Thin film preparation of the p-type transparent semiconductor Cu_3TaS_4[1] PAUL NEWHOUSE, Department of Physics, Oregon State University, PETER HERSH, DOUGLAS KESZLER, Department of Chemistry, Oregon State University, JANET TATE, Department of Physics, Oregon State University — Thin films of a new wide band gap p-type semiconductor Cu_3TaS_4 (CTS) are prepared by PLD deposition of Cu and Ta metal multilayers and subsequent ex-situ rapid thermal processing in a sulfur environment. X-ray diffraction confirmed the presence of single phase CTS. 275 nm thick CTS films on fused SiO_2 substrates show reflection-corrected transmission >70% over the range 400-700 nm, with an optical band gap near 2.8 eV. The electrical resistivity of undoped CTS thin films is $\sim$ 5 Ohm cm. These properties indicate that CTS thin films may find application in transparent electronics.

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