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Growth of tin sulfide thin films by pulsed laser deposition JASON FRANCIS, JANET TATE, Physics Department, Oregon State University — Polycrystalline thin films of tin sulfide were grown on fused quartz substrates from an Sn_2S_3 target by pulsed laser deposition at temperatures ranging from 200C to 500C and pulse rates between 3Hz and 10Hz. 100nm thick films absorb roughly 50% of incident light in the 400 to 700nm range, and have an optical band gap of approximately 1.5eV. Hall measurements give mobilities of 4 to 15cm^2/Vs, carrier concentrations of .25 to 2.5 x 10^{16} cm^{-3}, and resistivities of 120 to 1000Ωcm, depending on deposition conditions. These properties indicate that tin sulfide may be suitable for use as an absorber layer in thin film photovoltaic devices.

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