

Abstract Submitted
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Temperature dependent photoconduction in atomically thin Layers of Indium Selenide SUJOY GHOSH, MILINDA WASALA, JIE ZHANG, Department of Physics, Southern Illinois University Carbondale IL-62901, USA, SIDONG LEI, ROBERT VAJTAI, PULICKEL M. AJAYAN, Department of Materials Science and Nano Engineering, Rice University, Houston, Texas 77005, United States, SAIKAT TALAPATRA, Department of Physics, Southern Illinois University Carbondale IL-62901, USA — We will report on the photo response in few-layers of thin Indium Selenide (InSe) flakes exfoliated from crystals grown using chemical vapor transport technique. Temperature dependent (20 K -300K) photoconductivity measurements investigated using a continuous laser of $\lambda = 658\text{nm}$ ($E=1.88\text{eV}$), over a broad range of illuminating laser power, P ($0.1 \mu\text{W} < P < 4\mu\text{W}$) indicate a power dependence of steady state photocurrent (I_{ph}) on P ($I \sim P^\beta$ with $\beta \sim 1$). The highest responsivity obtained in these samples were $\sim 0.5\text{AW}^{-1}$. Variation and/or dependence of these measured properties with respect to temperature will be presented. The frequency (with Laser pulse frequency range 1Hz-200Hz) dependent photocurrent will be presented and discussed. This work is supported by the U.S. Army Research Office through a MURI grant # W911NF-11-1-0362.

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