

Abstract Submitted  
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**Temperature-Dependence in Optical Properties of Topological Insulator  $\text{Bi}_{1.5}\text{Sb}_{0.5}\text{Te}_{1.8}\text{Se}_{1.2}$**  CHI SIN TANG, XING QUAN ZOU, BIN XIA, MINGYI LIAO, LAN WANG, ELBERT E.M. CHIA, Nanyang Technological University — Topological Insulators are materials with insulating bulk states and conducting states on their edge or surface. Using Terahertz Time-Domain Spectroscopy (THz-TDS), we studied the temperature-dependence of the optical properties of  $\text{Bi}_{1.5}\text{Sb}_{0.5}\text{Te}_{1.8}\text{Se}_{1.2}$  single-crystals from 5 K to 300 K in the terahertz regime (0.4 THz to 3.0 THz). We observed a spectral weight shift from low frequencies to frequencies above 1.0 THz in the real conductivity at temperatures below  $\sim 100$  K.

Chi Sin Tang  
Nanyang Technological University

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