

Abstract Submitted
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Probing the Electronic Structure of Chalcogen Ultra-doped Silicon JOSEPH T. SULLIVAN, BONNA NEWMAN, TONIO BUONASSISI, Massachusetts Institute of Technology — Chalcogen impurity atoms in silicon have been shown to introduce deep energy levels within the bandgap. Absorption coupled to these defect levels could account for the enhanced sub-bandgap absorption. We will report on the methods and preliminary results of measuring the absorption coefficient in the isolated S-doped layer. Additionally, we use x-ray spectroscopy to probe the electronic properties of the material, and to understand the specific role that dopant states play in enhanced absorption.

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