

Abstract Submitted  
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**Thermoelectric Properties of a-InGaZnOx** D.S. WILLIAMS, STEPHAN PIOTROWSKI, B.E. WHITE, Binghamton University — Primarily known as an active layer in thin film transistors, the electrical and thermal properties of a-InGaZnOx indicate promise as a thermoelectric material. In contrast to most phonon-blocking, electron-transmitting thermoelectric materials, a-InGaZnOx is a structurally amorphous material that maintains relatively high electron mobility (10-50 cm<sup>2</sup>/V-s) and optical transparency. Here we report on the electrical conductivity, thermal conductivity, and Seebeck coefficient of this material as a function of charge carrier concentration. Carrier concentration is modulated through thin film annealing in a reducing ambient. Room temperature thermal conductivity is found to be 0.35 W/m-K with a Seebeck coefficient of approximately 200  $\mu$ V/K. These data suggest room temperature thermoelectric figures of merit in the range of 0.1-0.3 are achievable with these materials, offering the possibility of transparent thermoelectric energy generation.

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