

**Electrical and thermal transport investigations along individual Sb₂Se₃
nanorods**

by

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ABSTRACT

Thermoelectric materials are a class of materials that can realize direct conversion between electrical energy and thermal energy. Theories propose that nanostructured thermoelectric materials can exhibit higher efficiency than traditional bulk materials. In this work, Sb_2Se_3 nanorods synthesized by microwave assisted wet chemistry methods are studied. Techniques are developed to successfully measure the electrical and thermal properties of these nanorods. These measurements provide a quantitative evaluation of their thermoelectric efficiency and provide feedbacks to the synthesis process for optimization of thermoelectric properties based on structure-property correlations. The results presented demonstrate the capability of measuring individual nanorods for electrical and thermal properties.