

Abstract Submitted
for the TS4CF08 Meeting of
The American Physical Society

Direct measurements of thermoelectric properties of thin films and nanostructures RUBINA SULTAN, AZURE AVERY, BARRY ZINK, University of Denver — Dwindling energy reserves have created an urgent need for alternative energy sources. Measurement and development of new thermoelectric materials offer an opportunity to recycle the waste heat from energy consumption, transforming it into a viable energy source. Efforts to maximize the dimensionless figure-of-merit ZT rely on accurate and effective measurement techniques. The aim of this poster is to present the design of thermal isolation structures and the thermopower measurements made using these structures on thermoelectric thin films. The unique design of the micromachined structures allows us to make simultaneous measurements of thermopower α and thermal conductivity k_{\parallel} to calculate ZT . We will present the measurement platform design and results from our first measurements on devices with established thermoelectric properties. Finally we will discuss the growth of our first doped amorphous silicon thin films and their potential as an efficient new class of thermoelectric materials.

Rubina Sultan
University of Denver

Date submitted: 22 Sep 2008

Electronic form version 1.4