

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Chemical, Electrical and Thermal Characterization of Nanoceramic Silicon Carbide HERVIE MARTIN, MALEK ABUNAEMEH, CYDALE SMITH, CLAUDIU MUNTELE, SATILMISH BUDAK, DARYUSH ILA, Alabama A&M University — Silicon carbide (SiC) is a lightweight high bandgap semiconductor material that can maintain dimensional and chemical stability in adverse environments and very high temperatures. These properties make it suitable for high temperature thermoelectric converters. At the Center for Irradiation of Materials (CIM) we design, manufacture and fabricate nanoceramic SiC, and perform electrical, thermal and chemical characterization of the material using particle induced X-ray emission (PIXE), Rutherford backscattering spectroscopy (RBS), Seebeck coefficient, electrical conductivity, and thermal conductivity measurements to calculate its efficiency as a thermoelectric generator. We are looking to compare the electrical and thermal properties of SiC ceramics with some other materials used for the same purposes.

Malek Abunaemeh
Alabama A&M University

Date submitted: 04 Dec 2008

Electronic form version 1.4