

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Carrier Type and Transport Characteristics of a-B₄C MARCUS SKY DRIVER, SAAD JANJUA, SUDARSHAN KARKI, DAE HEUM YEOUN, ANTHONY CARUSO, Dept. of Physics, University of Missouri - Kansas City, CARUSO RESEARCH GROUP TEAM — Boron carbide has many technological applications, including radiation hard semiconducting applications; the most popular of which is voltaic transduction. Structural defects are known to exist, whose implications in defining the majority carrier type is important, yet unclear. Gaining greater insight into the local physical structure and transport character is crucial toward optimizing the voltaic behavior. Subsequently, gaining information about the majority carrier and carrier concentration from Hall effect and band structure from photoemission spectroscopy gives insight into the electronic structure and transport of boron-rich carbides. Boron carbides are predominately p-type due to their electron deficiency, but it has been suggested that the electron as a majority carrier may also exist. Preliminary studies including Hall effect, photoemission and extended X-ray absorption fine structure will be discussed within the context of amorphous boron carbides with respect to the carrier properties and physical structure for various growth conditions, within the context of local structural defects.

Marcus Sky Driver
Dept. of Physics, University of Missouri - Kansas City

Date submitted: 09 Dec 2008

Electronic form version 1.4