

Abstract Submitted
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Neutron detection characteristics of semiconducting boron carbide¹ ANDREW HARKEN, Mechanical Engineering and CMRA, University of Nebraska-Lincoln, Lincoln, NE 68588, BRIAN ROBERTSON, Mechanical Engineering and CMRA, University of Nebraska-Lincoln, Lincoln, NE 68588 — The all boron carbide semiconducting neutron detector is sought because it could potentially yield the most useful and efficient of all thermal neutron detectors. We report on experiments to obtain data using alpha particle and neutron capture measurements. The results are analyzed in relation to our measurements of the dielectric properties and to initial charge transport considerations. The neutron capture results are compared with our modeling of the ideal neutron detector behavior calculated for an all boron carbide semiconductor device.

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