Abstract Submitted
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Surface and Bulk Characteristics of Cesium Iodide (CsI) coated Carbon (C) Fibers for High Power Microwave (HPM) Field Emission Cathodes[1] VASILIOS VLAHOS, DANE MORGAN, JOHN H. BOOSKE, University of Wisconsin-Madison, DON SHIFFLER, AFRL-DEHP, Kirtland AFB — CsI coated C fibers [1] are promising field emission cathodes for HPM applications. *Ab initio* computational modeling has shown that atomically-thin CsI coatings reduce the work function of C substrates by a surface dipole mechanism [2]. Characterization measurements of the composition and morphology of the CsI-coated C fibers are underway for determining the properties and characteristics of the following important regions of the fiber: (i) the surface on the tip of the fiber where the majority of electron emission is believed to occur, (ii) the surface covering the body of the fiber and its role on the emission properties of the system, and (iii) the interior volume of the fiber and its effects on the CsI surface re-supply process and rate. The results will be interpreted in terms of surface electronic properties and theoretical electron emission models. [1]D. Shiffler, et al., Phys. Plasmas 11 (2004) 1680. [2]V.Vlahos et al., Appl. Phys. Lett. 91 (2007) 144102.

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Vasilios Vlahos
University of Wisconsin-Madison

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