

Abstract Submitted
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Thermionic cooling on barium strontium coated CNT thin film surface FENG JIN, Ball State University — Strong thermionic emission was observed from low-work-function barium strontium oxide coated CNT thin films. Such strong thermionic emission resulted a large cooling effect on the emitting surface. Temperature drops as high as 90 °C was obtained. Barium strontium oxide [(BaSr)O] thin films approximately 1 μm in thickness were deposited on CNT thin film grown on tungsten substrates using RF magnetron sputter deposition. Thermionic emission from the thin film was characterized and the work function of the thin film was measured using Richardson line method. The temperature drop or cooling of the thin film surface at different emission current was measured using a high precision optical pyrometer.

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