

Abstract Submitted
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Synthesis and characterization of erbium (III)-doped polyimide nanofibers for low temperature thermophotovoltaic applications¹

ZHENXIN ZHONG, DARRELL RENEKER, Dept of polymer science, University of Akron — Thermophotovoltaic conversion technology is a promising way to convert waste heat to electricity via photons. In this research, erbium (III)-doped polyimide nanofibers mats were prepared as selective emitters to explore the selective thermal emission efficiency in a low operating temperature range (< 500 °C). The selective emission at 6500 cm^{-1} of erbium (III)-doped polyimide nanofiber mats was measured on mats characterized with scanning electron microscopy, transmission electron microscopy, FT-IR spectroscopy, and thermogravimetric analysis. A small but potentially useful amount of power was obtained from a 2 mg mat.

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