

Abstract Submitted  
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**Experimental demonstration of superconducting critical temperature increase in electromagnetic metamaterials<sup>1</sup>** VERA SMOLYANINOVA, BRADLEY YOST, KATHRYN ZANDER, THOMAS GRESOCK, Towson University, MICHAEL OSOFSKY, HEUNGSOO KIM, NRL, SHANTA SAHA, RICHARD GREENE, IGOR SMOLYANINOV, University of Maryland — A recent proposal that the metamaterial approach to dielectric response engineering may increase the critical temperature of a composite superconductor-dielectric metamaterial has been tested in experiments with compressed mixtures of tin and barium titanate nanoparticles of varying composition. An increase of the critical temperature of the order of 0.15 K compared to bulk tin has been observed for 40% volume fraction of barium titanate nanoparticles. Similar results were also obtained with compressed mixtures of tin and strontium titanate nanoparticles.

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