

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

A Metamaterial-Inspired Approach to RF Energy Harvesting

CLAYTON FOWLER, JIANGFENG ZHOU, University of South Florida — We demonstrate an RF energy harvesting rectenna design based on a metamaterial perfect absorber (MPA). With the embedded Schottky diodes, the rectenna converts captured RF energy to DC currents. The Fabry-Perot cavity resonance of the MPA greatly improves the amount of energy captured and hence improves the rectification efficiency. Furthermore, the FP resonance exhibits high Q-factor and significantly increases the voltage across the Schottky diodes. This leads to a factor of 16 improvement of RF-DC conversion efficiency at ambient intensity level.

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Date submitted: 06 Nov 2015

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