

Abstract Submitted  
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**Broad Band Absorber Based on Metamaterials**<sup>1</sup> TIMOTHY D. CORRIGAN, H.D. DREW, Department of Physics, University of Maryland, R.J. PHANEUF, Department of Materials Science, University of Maryland, PAUL KOLB, Laboratory for Physical Sciences — We describe a near perfect broad band absorber based on a laterally nanostructured multilayer material. We present calculations of the structure that demonstrates over 98% absorption over a wide frequency range around the 300 K black body spectrum. We also show that a nanostructured metamaterial allows us to tailor the index of refraction using effective medium theory, with further improvement of the absorption characteristics to over 99% over the same frequency range. The absorber can be adapted for use in any frequency range and any source type. These materials may have applications in energy harvesting and scattered light control.

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