

Abstract Submitted
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Electromagnetic “black holes” in hyperbolic metamaterials IGOR SMOLYANINOV, University of Maryland — We demonstrate that spatial variations of the dielectric tensor components in a hyperbolic metamaterial may lead to formation of electromagnetic “black holes” inside this metamaterial. Similar to real black holes, horizon area of the electromagnetic “black holes” is quantized in units of the effective “Planck scale” squared. Potential experimental realizations of such electromagnetic “black holes” will be considered. For example, this situation may be realized in a hyperbolic metamaterial in which the dielectric component exhibits critical opalescence.

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