



2014, Volume 4, Number 3

Metallized Porous GaP Templates for Electronic and Photonic Applications

Ion Tiginyanu, Eduard Monaico, Vladimir Sergentu,
Andrei Tiron, Veaceslav Ursaki

<https://doi.org/10.1149/2.0011503jss>

Abstract

We report on fabrication of two-dimensional metallo-semiconductor networks by using pulsed electroplating of Pt inside electrochemically-prepared porous GaP layers with parallel pores possessing diameters in the micrometer and sub-micrometer ranges. The electrochemical parameters were optimized for a uniform metal deposition on the inner surface of porous template. A variable capacitance device fabricated on Pt/GaP Schottky diodes forming at the interface of Pt/GaP interpenetrating networks showed a much higher capacitance density variation as compared to standard devices. The results of calculations demonstrate also good focusing properties of flat photonic lenses assembled from metallized porous GaP slabs, especially at long wavelengths including the far infrared spectral range.