

Abstract Submitted
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Fabrication and Characterization of Porous Alumina Template based Gold-Polymer Nanocomposite Plasmonic Nanoarrays¹ SHOBHA SHUKLA, Department of Electrical Engineering, ILPB, University at Buffalo, Buffalo, NY-14260, K.T. KIM, Department of Electrical Engineering, University at Buffalo, Buffalo, NY-14260, A. BAEV, ILPB, University at Buffalo, Buffalo, NY-14260, Y.K. YOON, Department of Electrical Engineering, University at Buffalo, Buffalo, NY-14260, P.N. PRASAD², Department of Chemistry, Electrical Engineering, ILPB, University at Buffalo, Buffalo, NY-14260 — Plasmonic nanostructures can be tuned by changing their geometry such as the aspect ratio of gold pillars. Although they are very attractive for many applications such as biosensors, imaging beyond diffraction limit etc. there is lack of an easy, cost-effective process for implementing such structures. We report a simple, facile and manufacturable method to produce gold-polymer plasmonic nanoarrays in nanoporous alumina templates. Two dimensional arrays of gold-polymer nanocomposite support discrete plasmon resonance modes at visible and infrared frequencies. Finite element full-wave analysis in three-dimensional computational domain confirms our experimental results.

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²Corresponding Author

Shobha Shukla
Department of Electrical Engineering and ILPB,
University at Buffalo, Buffalo, NY-14260

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