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Analytic LC model for plasmonic resonances in nano-structured split-ring resonators[1] P. W. KOLB, Laboratory for Physical Sciences, College Park, MD 20740, T. D. CORRIGAN, A. B. SUSHKOV, H. D. DREW, D. C. SCHAMDEL, Department of Physics, University of Maryland, College Park, MD 20742, R. J. PHANEUF, Department of Materials Science and Engineering, University of Maryland, College Park, MD 20742 — We systematically investigate the plasmonic resonant behavior of metallic nano-structured split-ring resonators as a function of the size of the split gap, substrate permittivity, metal skin depth, and sample height. We performed simulations of the structures and examine the E-field and current density maps. We present a simple, analytic LC model to describe the lowest order resonance and its dependence on the aforementioned parameters.

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