

Abstract Submitted
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Mie plasmon-polariton modes in a 2D photonic crystal composed by superconducting cylindrical hollow rods BRAYAN DIAZ, JORGE MEJIA, JESÚS CALERO, Univ Del Valle — At present work we study the physical properties of localized surface plasmon-polariton modes (Mie plasmons) in a two-dimensional photonic crystal composed by high temperature superconducting cylindrical hollow rods. Numerical calculations were performed by means of the finite difference time-domain (FDTD) technique by considering Drude-lorentz dispersive hollow rods with an inner and outer radii $R_1 = 0.2a$ and $R_2 = 0.3a$ respectively, where a corresponds to the lattice parameter. Additionally, we have calculated the field profiles for some specific modes at Γ and X band edges within the first Brillouin zone. On the other hand, in the present work we show the conditions for Mie resonances in a single hollow rod and these results were compared with the corresponding slight dispersive modes in the case of a 2D photonic crystal.

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