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**Mie plasmon-polariton modes in two-dimensional metallic photonic crystals** BRAYAN DIAZ, Universidad del Valle, RICARDO MEJIA, Cidade Universitária, Maceió, NELSON PORRAS, Universidad del Valle — We have studied the Mie plasmon-polariton resonances in cylindrical metallic hollow rods by calculating the scattering ( $Q_{sca}$ ), extinction ( $Q_{ext}$ ) and absorption ( $Q_{abs}$ ) coefficients, which were compared with results for the photonic band structure (PBS) of the corresponding periodic 2D system, showing that Bloch plasmon-polariton modes in the periodic system stem from plasmon resonances at each individual rod. On the other hand, by calculating the field distribution corresponding to plasmon resonances, in both cases, we show that the symmetry properties remain similar, indicating a robustness of these localized plasmon modes.

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