

Cloaking due to anomalous localized resonance in plasmonic structures

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If a core of dielectric material is coated by a plasmonic structure of negative dielectric material with non-zero loss parameter, then anomalous localized resonance may occur as the loss parameter tends to zero and the source outside the structure can be cloaked. It has been proved that the cloaking due to anomalous localized resonance (CALR) takes place for structures of concentric disks and the critical radius inside which the sources are cloaked has been computed. In this paper, it is proved that CALR takes place for structures of confocal ellipses and the critical elliptic radii are computed. The method of this paper uses the spectral analysis of the Neumann-Poincaré type operator associated with two interfaces (the boundaries of the core and the shell).

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