

A Source-Model Technique for analysis of wave guiding along chains of metallic nanowires in layered media

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Abstract: A method for determining the modes that can be guided along infinite chains of metallic nanowires when they are embedded, as in most realistic set-ups, in layered media is presented. The method is based on a rigorous full-wave frequency-domain Source-Model Technique (SMT). The method allows efficient determination of the complex propagation constants and the surface-plasmon type modal fields. Sample results are presented for silver nanowires with circular and triangle-like cross-sections lying in an air-Si-glass layered structure.

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