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Title:Analysis of dielectric loaded surface plasmon waveguide structures: Transfer matrix method for plasmonic devices

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Abstract:The propagation properties of dielectric loaded surface plasmon polariton (DLSPP) waveguide structures have been investigated by using the transfer matrix method (TMM), which is simple and has a fast calculation speed. The results obtained from the TMM agree well with those from the finite element method. As a demonstration, we investigate the waveguide properties of DLSPP structures in the terahertz and near-infrared regimes. The TMM is potentially a powerful and effective tool for studying various plasmonic waveguide structures, which may find important applications in integrated photonic devices and sensors.

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