95. Title: Enhancing the Dual-Band Guiding Capabilities of Coaxial Spoof Plasmons via use of Transmission Line Concepts

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Abstract: We derive closed analytical forms for the response of coaxial spoof plasmons, aided by transmission line concepts under the effective complex surface impedance framework. This constitutes a powerful platform to improve as well as to elucidate designs with enhanced performances. In particular, we propose a dual-band spoof plasmon waveguiding geometry with the higher order slow-wave mode operating well below the regime governed by dispersion of periodic guides (Bragg reflections at Brillouin zone boundaries), that is, diffraction. The analysis is supported by eigen mode numerical calculations. As an example in a waveguide device context, we demonstrate the dual-band planar routing ability of elliptical-coaxial cable-based spoof plasmons along a straight chain as well as a Y-splitter.