

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Propagation of surface plasmons on highly anisotropic dielectric substrates¹ NAGARAJ NAGARAJ, ARKADII KROKHIN, University of North Texas — We calculate the propagation length of surface plasmons in dielectric-metal-dielectric structures with anisotropic substrates. We show that the proper orientation of the optical axis of the crystal with respect to the metal surface minimizes Joule losses enhancing the propagation length of surface plasmons. The propagation length in a wide range of frequencies including the telecommunications region is analyzed. A simple Kronig-Penney model for anisotropic plasmonic crystal where the substrate is a periodic sequence of dielectric delta-peaks is also proposed. In this model the dispersion relation for surface plasmon has a band structure where the band width tends to zero when the frequency approaches the resonant frequency.

¹This work was supported by the US Department of Energy through Grant No. DE-FG02-06ER46312.

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Date submitted: 22 Nov 2010

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