Channel spoof surface plasmon polaritons and its experimental verification

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Abstract

Subwavelength guiding of channel plasmon polaritons (CPPs) is realized by a properly
structured metallic groove at frequencies far below the surface plasma frequency of metal.
Compared with CPPs at visible frequencies, more versatile physical mechanisms can be introduced
in these CPPs by surface patterning, so that they can exhibit superior features as visible CPPs, while
eliminating the potential drawbacks of the latter. Microwave experimental measurement in the
transmittance verifies the high efficiency of wave guiding in such spoof CPPs, agreeing with the
theoretical prediction.

Keyword：surface plasmon