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Field enhancement using fractal plasmonic nano-structures

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This paper presents a novel infrared fractal nano-structure with a localized enhanced field with multiband resonant frequencies. Based on complementary fractal geometry, these structures offer two important characteristics, multiband functionality and a sub wavelength effect. The electric field, power flow, and the field intensity distributions are given to indicate the internal mechanism of the localized enhanced field in the fractal nano-structure. It is shown that a strongly enhanced localized field is achieved in the fractal nano-structure at many different resonance frequencies. The multiband property and high localized intensity offered by the fractal nano-structure give a great potential to the surface plasmon applications

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