

# Electric Field Enhancement Around Gold Tip Optical Antenna

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## Abstract

© 2015, Springer Science+Business Media New York. This paper provides a new design of gold tip optical antenna based on a specific geometry, and then the change of enhancement of the electric field of plane wave laser excitation with 400 to 700 nm around of the optical antenna are simulated. Changing the geometry of optical antenna includes creating circular gratings with the periods 200 and 300 nm on the shaft of antenna. With the exerting of laser light to the place of these gratings, the distribution of enhancement of the electric field in a plane perpendicular to the shaft has been acquired. Finally, the optimized value for the maximum enhancement at the period of 293 nm is obtained.

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## Keywords

Field enhancement, Gold tip, Localized plasmon, Optical antenna, Surface plasmon