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Nanofocusing of Surface Plasmon Polaritons by Partially Metal- Coated Dielectric Conical Probe: Optimal Asymmetric Distance

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Abstract : Nanometric superfocusing of optical intensity near the tip of partially metal- coated dielectric conical probe of the convergent surface plasmon polariton wave is investigated by the volume integral equation method. It is possible to perform nanofocusing using this probe by using both linearly and radially polarized Gaussian beams as the incident waves. Strongly localized and enhanced optical near-fields can be created on the tip of this probe for the cases of both incident Gaussian beams. However the intensity distribution near the probe tip was found to be very sensitive to the shape of the probe tip.

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