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# Absorption enhancement by matching the cross-section of plasmonic nanowires to the field structure of tightly focused beams

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**Abstract:** Localized surface plasmon resonance is characterized by a significant electric field component normal to some parts the surface. Shaping the surface to be normal to the direction of an incident electric field may increase the incident power coupling to the excited plasmonic mode, enhancing the absorption in lossy nanowires. In this work we perform a numerical analysis to investigate the dependence of the absorption on the shape of the nanowire cross-section for two cases of tightly focused beam illumination. We show that nanowires occupying a relatively small portion of the beam waist area can still absorb up to 65% of the power of the incident beam.

**Keywords:** Scattering, particles; Surface plasmons.

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