

## Field enhancement in nanoparticles due to IR vortex beams

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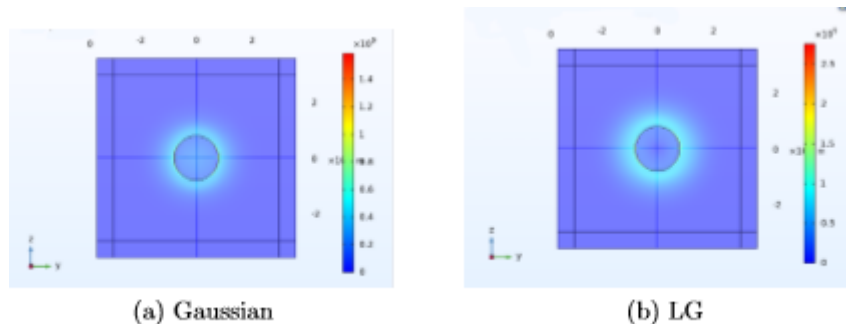
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### Abstract

In this report we present our study of interaction of light carrying OAM (Orbital Angular Momentum) with nanometric metallic discs. Plasmonic effects are known to give rise to high local field enhancement factors in gold nano-discs [1]. These high intensities near fields have found use in a wide variety of imaging and detection applications [2]. The local field enhancement factor near the surface of the disc was calculated numerically using finite element method using the Comsol package. We report a significant increase in the local field enhancement factor for light beams carrying OAM compared to Gaussian beams which are attributed to localised surface plasmon resonances (LSPR). Such large enhancements in the field can be immensely useful in the field on near field microscopy and electron generation.



### References

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