**Abstract**

The numerical investigation on plasmonic structures generated by excitation of surface plasmon using radially polarized Sinh gaussian beam based on vector diffraction theory is studied. It is observed that by suitably altering the beam waist ratio and beam order corresponding to various topological charges can generate a plasmonic structures with confined spot and larger focal depth. The side lobe intensity is found to vary drastically with increase in beam order and beam waist ratio for every topological charges considered. Thus by properly increasing the beam ratio value and beam order generates a highly confined focal spot with larger focal depth. Due to its higher resolution this beam finds application in optical trapping, high resolution imaging and optical data storage.