

Magnetic field concentration with coaxial silicon nanocylinders in the optical spectral range - DTU Orbit (09/11/2017)

Magnetic field concentration with coaxial silicon nanocylinders in the optical spectral range

Possibility of magnetic energy accumulation inside silicon nanoparticles at the conditions of resonant optical responses is investigated theoretically. The magnetic field distributions inside silicon nanocylinders with and without coaxial through holes are calculated using full-wave numerical approach. It is demonstrated that such systems can be used for control and manipulation of optical magnetic fields providing their enhancement up to 26 times at the condition of optical resonances. Obtained results can be used for realization of nanoantennas and nanolasers, in which magnetic optical transitions play significant roles.

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