Calculation of light pressure on a round dielectric cylinder using a fast iterative algorithm and based on an analytical solution

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Abstract:

The analytical solution of diffraction of a nonparaxial Gaussian beam on a round cylinder is compared with a fast iterative calculation algorithm. The pressure forces are calculated, and the efficiency of optical capture of a circular dielectric cylinder is estimated using a Gaussian beam with sharp focusing for the two-dimensional case.

Keywords: dielectric cylinder, Gaussian beam, diffraction

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