

# Microscopic trapping with self-accelerating Bessel-like beam in fiber system

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Optical trapping has been applied for various fields of science in microscopic scale. By using optical force, micro-size particles are well trapped on certain beam pattern. The Bessel beam and Airy beam can make an advantage of the beam pattern for optical trapping. Their beam pattern has an intensity contrast compacted on small area. Especially, fiber-based optical trapping provides optical trapping with micro-scale beam pattern.

We suggest Self-accelerating Bessel-like beam which can manipulates micro-size beads. With tiny fiber, the microscopic Bessel beam pattern is generated in a transverse direction. The polystyrene bead with diameter of  $15\mu\text{m}$  is trapped on Bessel beam pattern.

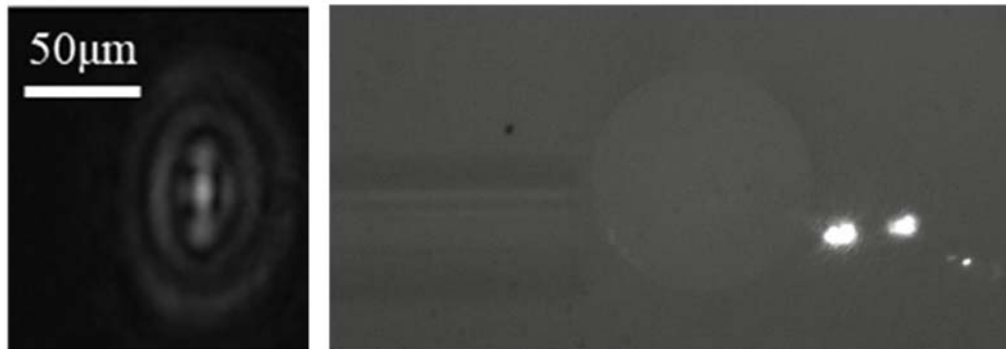


Fig 1. Microscopic Bessel beam shape and polystyrene beads trapping along self-accelerating Bessel-like beam.