

عنوان مقاله:

Optical Tweezers and Spatial Solitons: a review

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خلاصه مقاله:

Optical tweezers provide the possibility of contactless moving and trapping of micro and nanoparticles. The optical trapping mechanism is based on the momentum exchange between the trapped particle and the trapping beam using a scattering process. Using optical tweezers, small cell or biological particles can be optically trapped and moved. If there is a balance between linear diffraction and nonlinear self-focusing, spatial soliton will be created. Spatial solitons are beams that propagate through a medium without spatial diffraction. In this article, a brief review of optical tweezers and spatial solitons have been done. Considering the interesting properties of solitons, it seems that it is possible to design optical tweezers based on spatial solitons that have higher efficiency and better performance than other optical tweezers. Optical tweezers can help us manipulate particles of a wide range of sizes, from atoms that exhibit quantum behavior to cells that exhibit classical behavior. For this, optical tweezers have emerged as an effective tool that allows us to explore and clarify the boundary between the classical world and the quantum world. In this regard, our expectations for the years to come are also great.

کلمات کلیدی:

Optical Tweezer, Soliton, Trapping, Nanoparticle

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