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Title:	A table-top compact multimodal nonlinear laser tweezer
Authors:	Devia, Anita (/jspui/browse?type=author&value=Devia%2C+Anita) K.D, Arijit (/jspui/browse?type=author&value=K.D%2C+Arijit)
Keywords:	tweezer Optical excitation Pulsed Optical Kerr Effect (OKE)
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Abstract:	There is presently an increased research activity in understanding the nature of optical force when ultrashort pulsed excitation is used to trap and manipulate objects with sizes ranging from micrometers down to nanometers. Such a nonlinear laser tweezer is peculiarly promising because the nature of the force can be dramatically tuned owing to optical nonlinearity. However, accurate measurement of pulse-width at the sample position, force calibration, and high price, not encountered with a conventional laser tweezer, limits its practical use. Here, we describe design principles and force calibration of a nonlinear laser tweezer which is inexpensive, completely home-built, easy to be moved, and has a multitude of detection modalities. We also show how pulse-width at the sample position can be measured in a facile way and how trap stiffness varies with sample planes and, most importantly, with the nature of excitation (continuous-wave vs pulsed).
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