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Title:	Simultaneous detection of two-photon fluorescence and backscatter in laser trapping of dielectric nanoparticles
Authors:	Devi, A. (/jspui/browse?type=author&value=Devi%2C+A.) De, A.K. (/jspui/browse?type=author&value=De%2C+A.K.)
Keywords:	Two-photon fluorescence Whether High-repetition-rate
Issue Date:	2019
Publisher:	Society of Photo-Optical Instrumentation Engineers
Citation:	Journal of Nanophotonics, 13(2).
Abstract:	In recent past, high-repetition-rate, ultrafast pulse excitation has been identified to play an important role in stable trapping of dielectric nanoparticles assisted by optical nonlinearity due to its high peak power. We experimentally demonstrate trapping of 100-nm fluorescent polystyrene particles by simultaneous detection of both two-photon fluorescence (TPF) and backscattered signals. Here we show that TPF signal decays over time due to photobleaching, but this signal is useful to know whether a particle is dragged toward the trap while backscattered signal provides detailed information about the particle's dynamics inside the trap. We also discuss pros and cons of moving-averaging method (used to smooth noisy experimental data). We conclude that both TPF and backscattered detection methods are needed to explore the dynamics of the particle inside the potential well.
URI:	https://www.spiedigitallibrary.org/journals/journal-of-nanophotonics/volume-13/issue-2/020501/Simultaneous-detection-of-two-photon-fluorescence-and-backscatter-in-laser/10.1117/1.JNP.13.020501.short (https://www.spiedigitallibrary.org/journals/journal-of-nanophotonics/volume-13/issue-2/020501/Simultaneous-detection-of-two-photon-fluorescence-and-backscatter-in-laser/10.1117/1.JNP.13.020501.short) http://hdl.handle.net/123456789/2124 (http://hdl.handle.net/123456789/2124)
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