

Abstract Submitted
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Superfluorescence of ZnO nanoparticles: a three-level model

POOJA SINGH, YURI ROSTOVTSEV, Department of Physics, University of North Texas — We have studied fluorescence and second harmonic generation that occur in a three-level system. We have obtained that at approaching to the two-photon resonance, the efficiency of second harmonic is decreasing and intensity of resonant fluorescence is increasing. Under some condition, superfluorescence regime leads to generation of short intense pulses under two-photon excitation (duration of the pulses are shorter than the relaxation times). The obtained results are applied to ZnO nanoparticles to explain the experimentally observed behavior of second harmonic generation and two-photon emission excited by fs-laser pulses.

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