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Influence of Local Field Effects on the Radiative Properties of Nd:YAG Nanoparticles in a Liquid Suspension KSENIA DOLGALEVA, ROBERT BOYD, Institute of Optics, University of Rochester — Local field effects can significantly modify the optical properties of laser materials. Neodymium-doped yttrium-aluminum garnet (Nd:YAG) nanopowder with particle sizes on the order of 50 nm was suspended in different organic and inorganic liquids to produce Maxwell-Garnett-type composite materials. The fluorescence decay time of Nd:YAG nanocomposites was experimentally investigated as functions of the refractive index of the liquid, Nd:YAG filling fraction, and the pump-radiation wavelength. The results of these measurements were compared to the predictions of various theoretical models that include in influence of local field effects in nanocomposite materials.

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