

Abstract Submitted
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Optical Studies of Newly-developed Nd doped Ceramic Laser Materials NICHOLAS APROBERTS-WARREN¹, XUESHENG CHEN, Department of Physics and Astronomy, Wheaton College, Norton, MA 02766 — A major focus in recent laser research is to develop new laser materials for making high-power and efficient lasers, for which transparent ceramic laser materials have great potentials. In this research project, newly-developed transparent ceramic laser materials are examined for their optical properties. They are PLZT doped with Nd ions of 0.5%, 1%, and 2%. Absorption and luminescence spectra of these materials are investigated in the wavelength range from 350 to 1100 nm at different temperatures. The implications of these results are very important. The absorption peaks reveals what wavelengths the materials absorb well, which is critical in knowing what kinds of pump lasers to use. The luminescence results establish what Nd ion concentration gives off strong emission at certain wavelengths for potential lasing wavelength choices. Results will be discussed in details. We would like to acknowledge the support from NSF and Wheaton Research Participation Program and collaboration with BATI.

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