

Abstract Submitted
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Optical Properties of Erbium or Neodymium Ions in Different Kinds of Host Materials - Ceramics versus Single Crystals¹ GAOZAN DING², XUESHENG CHEN, Wheaton College, Norton, MA 02766, BALDASSARE DI BARTOLO, GOKHAN BILIR, Boston College, Chestnut Hill, MA 02467 — Erbium or Neodymium ion doped materials have many important applications including making lasers at some most popular wavelengths such as around 1500nm and 1060nm. However, their optical properties and characteristics do change with host materials as well as with the Erbium or Neodymium dopant concentrations. This research work focus on how different kinds of host materials affect the absorption spectra, emission spectra, and lifetimes. One kind of the host materials is transparent ceramic materials, and the other kind is single crystals. Absorption spectra of these optical/laser materials are investigated from UV to 3200nm. Lifetimes of different energy levels of Er and Nd ions in different hosts are studied. Detailed results and discussions will be presented. This work can provide crucial and valuable information on how different kinds of host materials, ceramics versus single crystals, affect the optical properties and characteristics of Er or Nd doped materials. We would like to acknowledge Boston Applied Technologies, Inc. for providing the Er and Nd doped ceramic materials. First author also likes to acknowledge the Wheaton Research Participation Program for the funding.

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