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Upconversion Luminescence of Novel Ceramic Laser Materials of Er-doped PLZT NAOTA NAKAYAMA[1], LEANNE LORTIE[2], ISABELLA PI-LING HUANG, XUESHENG CHEN, Department of Physics and Astronomy, Wheaton College, Norton, MA 02766 — The purpose of this research is to examine upconversion luminescence properties of Erbium-doped PLZT, a novel, new ceramic laser material. We investigate how the upconversion properties are affected by doping the ceramic host material PLZT with the Erbium concentrations of 0.5% and 2 %. Using an infrared laser at about 975nm to excite the sample, upconversion luminescence spectra are taken in range of 400 to 750 nm at different temperatures ranging from about 28K to 300K. Upconversion processes are discussed for the temperature and concentration dependence of the visible luminescence under the excitation of the infrared light. This is part of an ongoing joint project with industry funded by National Science Foundation that will lead to high power laser applications using this new ceramic laser material. We would like to acknowledge the support from NSF and collaboration with Boston Applied Technologies, Inc., which developed the material, and Wheaton Research Participation Program.

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☐ Prefer Oral Session
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