Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Infrared Emission and Upconversion Studies of Er^{3+} Doped in the Low Phonon-Energy Hosts KPb_2Cl_5 and KPb_2Br_5[1] ALTHEA BLUIETT, Elizabeth City State University, EI EI BROWN, CRAIG HANLEY, UWE HOMMERICH, Hampton University, SUDHIR TRIVEDI, Brimrose Corporation of America — There continues to be interests in Er^{3+} doped materials that can generate efficient emission in the 1.5-1.6 um range for eye-safe laser applications and optical communications. Directly pumping the $^4I_{13/2}$ band of Er^{3+} has been extensively studied in many hosts, such as YAG, however, it is well understood that the excitation of Er^{3+} through this channel automatically generates unwanted upconversion emission, which depletes $^4I_{13/2}$ level of Er^{3+} and moreover produces unwanted heating of the crystal. In this study, cw and pulsed laser excitation of the $^4I_{13/2}$ band of Er^{3+} will be explored as a function of host material (KPb_2Cl_5 and KPb_2Br_5) rare-earth ion concentration, and temperature in the search for the optimum combination of variables to minimize upconversion and concurrently generate more efficient 1.5 μm emission from Er^{3+}.

[1]This work is supported by Army Grant W911NF-11-1-0226.

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Date submitted: 17 Nov 2012 Electronic form version 1.4