Abstract Submitted
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Luminescent Lanthanide Complexes for Plasmonics and Metamaterials Studies.[1] ALEXIS BULLOCK, MARVIN CLEMMONS, Norfolk State University, TYRIA BLOW, Wilson High School, AUNDREA LINZY, NATALIA NOGINOVA, Norfolk State University — Organic complexes, $X(NO_3)_3 \bullet Bpy_2$, where X is rare earth ion, are of interest for various optical applications, including probing effects of modified optical environment in plasmonic systems and metamaterials, or mapping optical fields in metasurfaces by spectroscopic methods. Using solution growth technique, we grow single crystals with Eu, Gd, Nd, Tm, Er and Yb, and crystals with two rare earth ions, $Er_{0.5}Yb_{0.5}(NO_3)_3 \bullet Bpy_2$ and $Eu_{0.5}Nd_{0.5}(NO_3)_3 \bullet Bpy_2$. Obtained crystals can be excited at UV or the rare earth ion transitions, demonstrate relatively high efficiency of luminescence in visible or infra-red, and are suitable for thin film fabrication. The effects of plasmonic environment on the emission and excitation spectra and energy transfer processes will be discussed.

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