Fabrication and upconversion luminescence of Er^{3+}/Yb^{3+} codoped TeO_2-WO_3-Na_2O-Nb_2O_5-Al_2O_3 glass fibers

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Abstract

The tellurite fibers based on glasses with the composition TeO_2-WO_3-Nb_2O_5-Na_2O-Al_2O_3-Er_2O_3-Yb_2O_3 were fabricated by the rod-in-tube technique using a Heathway drawing tower. The upconversion luminescence of Er^{3+}/Yb^{3+} codoped tellurite glass fibers under 980 nm excitation were investigated. The Er^{3+}/Yb^{3+}co-doped tellurite fibers show an efficient up-conversion process in comparison with the Er^{3+}-doped tellurite fibers. The pump power dependent intensities were discussed, which showed that two photons are involved in the upconversion process.

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