

# Optical and physical properties of $\text{Er}^{3+}$ - $\text{Yb}^{3+}$ co-doped tellurite fibers ( Conference Paper )

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## Abstract

In this work we present results of physical and optical properties of  $\text{Er}^{3+}$ - $\text{Yb}^{3+}$  co-doped tellurite glasses and fibers. The Double Clad Tellurite Fibers (DCTFs) are based on glasses with the composition:  $\text{TeO}_2$ - $\text{WO}_3$ - $\text{Nb}_2\text{O}_5$ - $\text{Na}_2\text{O}$ - $\text{Al}_2\text{O}_3$ - $\text{Er}_2\text{O}_3$ - $\text{Yb}_2\text{O}_3$ . The DCTFs were fabricated by using the rod-in-tube technique and a Heathway drawing tower. The optical absorption spectra (ranging from 350 to 1750 nm) of these fibers were measured using an Optical Spectrum Analyzer (OSA). The emission spectra, around 1550 nm band, of these fibers (lengths varying from 1 to 60 cm) were obtained by using a 980nm diode laser pump. The optimal Amplified Spontaneous Emission (ASE) spectra were observed for fiber lengths ranging from 2 to 6 cm. The  $\text{Er}^{3+}/\text{Yb}^{3+}$  co-doped DCTFs show an efficient up-conversion process in comparison with the  $\text{Er}^{3+}$ -doped DCTF.

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## Proceedings of SPIE - The International Society for Optical Engineering

Volume 8120, 2011, Article number 812005

Photonic Fiber and Crystal Devices: Advances in Materials and Innovations in Device Applications V; San Diego, CA; United States; 21 August 2011 through 22 August 2011; Code 86810