

Study of Waveguide Silica Glasses by Raman Spectroscopy

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Abstract : In the paper, we study the effects of introducing hafnium oxide on Raman spectra of silica glass planar waveguide activated by 0.3 mol% Er³⁺ ions. This work compares Raman spectra measured for three thin films deposited on silicon substrate. The films were prepared with different molar ratio of Si/Hf using sol-gel method and deposited by dip coating technique. The effect of hafnium oxide incorporation on the waveguides shows the evolution of the structure of this material. This structural information is useful to understand the luminescence intensity by means of ion-ion interaction mechanisms.

Keywords : optical amplifiers, non-bridging oxygen, erbium, sol-gel, waveguide, silica-hafnia

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