



Spectroscopic assessment of silica-titania and silica-hafnia planar waveguides

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Résumé en anglais	<p>Silicate glasses remain the most investigated systems for optical planar waveguides, since they offer a reasonable solubility for rare-earth ions, they are transparent in the near-infrared-visible region and they are compatible with integrated optics (IO) technology. In the last decade, various technologies have been employed for the fabrication of silica (SiO₂)-based IO components and a broad variety of silicate glass systems have been investigated. Besides the SiO₂-titania (TiO₂) system, which has been widely studied, it has recently been shown that SiO₂-hafnia (HfO₂) could be a further viable system for 1.5 μm applications. This paper compares spectroscopic results, in particular infrared and Raman spectra, in order to assess the structural and optical properties of erbium-activated SiO₂-TiO₂ and SiO₂-HfO₂ planar waveguides, prepared by two different techniques: rf sputtering and the sol-gel method. Particular attention is devoted to the homogeneity of the material structures obtained in each case.</p>
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