Densification evaluation in femtosecond laser modified silica glass of types I, II and III

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Abstract

Ultrafast laser interactions can induce a wide variety of localized modifications within the volume of glass materials, such as Type I, II and III. In this work, we investigate the levels of densification associated with these modification types at the nanoscale, as well as their underlying mechanisms. Advanced characterization techniques, including scattering scanning near-field optical microscopy (s-SNOM) and nano-Fourier transform infrared (nano-FTIR) spectroscopy, are employed to resolve spectral shifts and structural rearrangements within the laser-modified volumes at the nanoscale.

Keywords: fs, lasers, densification, silica glass

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