
Spectroscopy as a tool for local density measurement in vitreous silica

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Abstract

The paper will discuss the possibility for light spectroscopies, *e.g.* Brillouin Light Scattering or Raman Scattering, to locally monitor the densification of amorphous silica. It is indeed well-known that silica significantly densifies under high stresses, either elastically as for example during a high-pressure experiment in a diamond-anvil cell below about 10 GPa or plastically above that limit. Further, this elastic limit strongly depends on the temperature. Irradiation-induced density changes are also observed using ultra-short laser pulses, neutrons or other particles. All these different routes lead to substantial structural modifications which in turn alter the response of silica to light spectroscopy in a complex manner.

Keywords: Spectroscopy, Silica, Densification, High Pressure

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