
Observing mechanical and elastic properties of glasses by spectroscopy methods: toward weight-lightening of glass.

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Abstract

Weight-lightening of glass leads both on lower consumption of raw materials and less energy is required for the melting. However, this needs to be compensated by coatings, thermal or chemical reinforcement to increase the mechanical properties and crack residence. In this sustainability approach, it is then key to estimate stress in situ. New development of Raman, Brillouin and optical spectroscopies allow evaluating directly residual stress and mechanical modified glass structures.

Keywords: residual stress, densification, Raman, Brillouin, luminescence of Rare Earth Elements

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