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Optical Properties of Rare-Earth Doped Nanostructured Materials

Guest Editor:

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Message from the Guest Editor

Rare-earth doped nanostructured materials have attracted great interest because of their luminescence properties (wide spectral range, intense and sharp bands, and long lifetime), with a high potential for applications in various fields, such as optoelectronic devices, radiation detection, white light generation displays, photovoltaics, telecommunications, solid state lasers, or nano-labels, in biological imaging and nanomedicine. Great efforts have been devoted to searching for new and controllable synthesis methods, by using various chemical methods, along with a better understanding of the nanosize and surface-related effects.

A promising development of the rare-earth doped nanostructured materials is represented by luminescent hybrid composite materials. These are based on stabilized rare-earth doped nanoparticles homogeneously dispersed in a glassy or polymeric matrix—nano-glass ceramics or inorganic-polymer composites, respectively. Such nanocomposites would allow for the exploitation of their favorable optical functionalities and optical transparency (because of a lack of scattering).

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Message from the Editor-in-Chief

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