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Transition Metal-Doped Inorganic Materials: Synthesis, Properties and Applications

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Message from the Guest Editors

Transition metals of the iron group from the fourth period of the periodic table (from 22Ti to 30Zn) are used as dopants to inorganic materials for the purpose of directional “design” of physical-chemical, optical, and mechanical properties. The presence of transition metal ions and their compounds as optically active centers in inorganic materials has given rise to many interesting features and found numerous applications. They applied in new efficient light sources, displays, solid-state lasers, detectors, persistent luminescence paints, etc. With the development of nanoscience and nanotechnology, new application possibilities have emerged, especially in photovoltaics, bioimaging, and physical and chemical sensing. Such a large variety of valuable uses is a consequence of the fascinating features of the luminescence of transition metal ions. To achieve high luminescence efficiency, dopants must have ion sizes different from the host, charge states, and also co-dopants to compensate for the difference in host ion and activator charges, which arise from elastic local stresses.



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Message from the Editor-in-Chief

Crystals are a very important class of structured material, both from a scientific and technological viewpoint. In 2011, the Nobel Prize in Chemistry was awarded to Dan Schechtman for his work on quasicrystals. Our journal already expresses in its name *Crystals* that its focus centers around all aspects of this class of materials, which has fascinated humankind from its beginning. Despite decades of research on crystals, it remains a hot and fascinating research topic.

Crystals is a good platform for dissemination of knowledge in this area.

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