

Special Issue

Recent Advances in Scintillator Materials

Message from the Guest Editor

Scintillating materials are well-known converters for the transformation of high-energy photons and particles into ultraviolet–visible light. Over the last 30 years, considerable effort has been made to create new scintillation materials for high-energy physics and advanced imaging systems for application in industry, science, biology, and medicine. The majority of newly developed single-crystal scintillators are based on Ce^{3+} , Pr^{3+} , and Eu^{3+} -doped materials due to their fast scintillation response (up to 100 ns) and high light yield, connected with the 5d–4f radiative transitions of these ions. However, other materials doped with isoelectronic impurities (Na^+ , Sc^{3+} , La^{3+}) with respect to core cations and mercury-like ions (Tl^+ , Pb^{2+} , Bi^{3+}) are also considered effective scintillator materials. In this Special Issue, we aim to introduce and describe in more detail the current status of R&D in bulk, film, film–crystal and nanocomposite scintillators, prepared using different technological methods. Both technological descriptions and the various characterization methods of scintillation materials, together with application aspects in the mentioned fields, will be provided.

Guest Editor

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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

Editor-in-Chief

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