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Research on Nonlinear Optics with 2D Materials

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Message from the Guest Editors

The discovery of graphene in 2004 has sparked a significant surge in research and development activities focused on two-dimensional (2D) materials, including graphene, black phosphorus, transition metal dichalcogenides (TMDCs), hexagonal boron nitride (hBN), and graphene oxide (GO). These materials, with their atomically thin and layered structures, exhibit remarkable optical properties that differ from those of conventional bulk materials. Studies have shown that 2D materials like graphene, graphene oxide, and MoS2 exhibit giant Kerr nonlinear responses, several orders of magnitude higher than those of bulk materials such as silicon.

Therefore, this Special Issue aims to showcase research papers and review articles that delve into the field of nonlinear optics with 2D materials. The focus includes investigating the nonlinear optical properties of 2D materials, such as saturable absorption, multiphoton absorption, and second- or third-order nonlinearity. Furthermore, the application of these properties in ultrafast all-optical signal generation and processing will be explored.

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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.

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