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Different Kinds of Hydrogen Bonds in Crystal Structures

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Message from the Guest Editors

A hydrogen bond is a special type of electrostatic force attraction that is somewhere between intermolecular or intramolecular, not a covalent bond to a hydrogen atom. It results from the attractive force between a hydrogen atom covalently bonded to a very electronegative atom and another very electronegative atom, such as nitrogen (N), oxygen (O), or fluorine (F). Hydrogen bonds play a crucial role in physical properties as a kind of weak interaction in crystals, such as proton conductivity, deuterium effect, and geometric H/D isotope effects. Taking ferroelectric KH2PO4 as an example, the phase transition temperature of KD2PO4 shows a 107 K upshift after deuteration. Additionally, in some other cases, the physical property exhibits a weak coupling correlation with the deuteration. Therefore, it is vital to understand the function of the hydrogen bond in crystal structures.

The current Special Issue on “Different Kinds of Hydrogen Bonds in Crystal Structures” focuses on the hydrogen bond effect in crystals, with a varied scope of hydrogen bond type, characterization, structure–property relationship, etc.

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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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