



**Neutron Protein Crystallography: Hydrogen,  
Protons, and Hydration in Bio-macromolecules  
(International Union of Crystallography  
Monographs on Crystallography)**

*Nobuo Niimura, Alberto Podjarny*

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# Neutron Protein Crystallography: Hydrogen, Protons, and Hydration in Bio-macromolecules (International Union of Crystallography Monographs on Crystallography)

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*Neutron Protein Crystallography* is one of the first books dedicated to the emerging field of neutron protein crystallography (NPC). The text covers all of the practical aspects of NPC, from the basic background of neutron scattering and diffraction, to the technical details of neutron facilities, growth of high-quality crystals, and data analysis. The final chapter is devoted to providing many examples of using NPC to investigate a wide range of different proteins. It demonstrates how NPC can explore hydrogen bonds, protonation and deprotonation of amino acid residues, hydration structures, and hydrogen-to-deuterium exchange ratios.

To avoid redundancy with other textbooks on X-ray protein crystallography (XPC), this book assumes a familiarity with the basics of XPC and strives to highlight and explain the differences between XPC and NPC. It is therefore especially useful for X-ray protein crystallographers who are eager to have a sound, scientific basis for judging if NPC is the right technique for furthering their experimental programs.

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