Proton conduction can be found in many different solid materials, from organic polymers at room temperature to inorganic oxides at high temperature. Solid state proton conductors are of central interest for many technological innovations, including hydrogen and humidity sensors, membranes for water electrolyzers and, most importantly, for high-efficiency electrochemical energy conversion in fuel cells.

Focusing on fundamentals and physico-chemical properties of solid state proton conductors, topics covered include:

- Morphology and Structure of Solid Acids
- Diffusion in Solid Proton Conductors by Nuclear Magnetic Resonance Spectroscopy
- Structure and Diffusivity by Quasielastic Neutron Scattering
- Broadband Dielectric Spectroscopy
- Mechanical and Dynamic Mechanical Analysis of Proton-Conducting Polymers
- Ab initio Modeling of Transport and Structure
- Perfluorinated Sulfonic Acids
- Proton-Conducting Aromatic Polymers
• Inorganic Solid Proton Conductors

Uniquely combining both organic (polymeric) and inorganic proton conductors, *Solid State Proton Conductors: Properties and Applications in Fuel Cells* provides a complete treatment of research on proton-conducting materials.

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