



Mixed Ionic Electronic Conducting Perovskites for Advanced Energy Systems

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Mixed Ionic Electronic Conducting Perovskites for Advanced Energy Systems

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- Discusses progress and problems in the development of ionic, electronic, and MIEC materials as active materials in advanced energy systems; the development and design of solid-oxide fuel cells (SOFCs) for next-generation vehicles, chemical sensors and oxygen separation membranes; and identifies directions for future research, such as conducting mechanisms, stability and reliability of devices, degradation problems, crystal structure, classification of phase transitions exhibited by the materials

Advanced mixed ionic electronic conducting (MIEC) perovskites play an important role in many electrochemical systems for advanced energy technologies. They are major components in such devices as solid oxide fuel cells (SOFCs), oxygen separation membranes, chemical sensors and catalysts. In addition to energy technology, the development of these multifunctional materials is of crucial importance for transportation, aerospace engineering, and electronics. The use of these materials as chemical sensors is also important for anti-terrorism initiatives. The present book discusses progress and problems in the development of ionic, electronic, and MIEC materials as active materials in advanced energy systems; the development and design of solid-oxide fuel cells (SOFCs) for next-generation vehicles, chemical sensors and oxygen separation membranes; and identifies directions for future research, such as conducting mechanisms, stability and reliability of devices, degradation problems, crystal structure, classification of phase transitions exhibited by the materials.

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