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Nota di contenuto	Part I Thermo-Responsive Hydrogel Functional Materials -- Structure-Function Relationship of Thermo-Responsive Hydrogels -- Preparation and Properties of Monodisperse Thermo-Responsive Microgels -- Flow and Aggregation Characteristics of Thermo-Responsive Microgels During Phase Transition -- Polyphenol-Induced Phase Transition of Thermo-Responsive Hydrogels -- Functional Membranes with Thermo-Responsive Hydrogel Gates -- Functional Microcapsules with Thermo-Responsive Hydrogel Shells -- Part II pH-Responsive Hydrogel Functional Materials -- Preparation and Properties of Monodisperse pH-Responsive Microgels -- pH-Responsive Membranes and Microcapsules for Controlled Release -- Part III Thermo-/pH-Dual-Responsive Hydrogel Functional Materials -- Thermo-/pH-Dual-Responsive Hydrogels with Rapid Response Properties -- Part IV Alcohol-Responsive Hydrogel Functional Materials -- Smart Functional Membranes with Alcohol-Responsive Characteristics -- Part V Glucose-Responsive Hydrogel Functional Materials -- Hydrogels with Rapid Response to Glucose Concentration Change at Physiological Temperature -- Glucose-Responsive Membranes and Microcapsules for Controlled Release -- Part VI Ion-Recognizable Hydrogel Functional Materials -- Preparation and Properties of Ion-Recognizable Smart Hydrogels -- Functional Microcapsules with Ion-Recognizable Properties -- Part VII Molecular-Recognizable Hydrogel Functional Materials -- Preparation and Properties of Molecular-Recognizable

Smart Hydrogels -- Functional Membranes with Molecular-Recognizable Properties.

Sommario/riassunto

Smart Hydrogel Functional Materials comprehensively and systematically describes our current understanding of smart or intelligent hydrogel functional materials with environmental stimuli-responsive functions. The contents range from hydrogels (including hydrogel-functionalized membranes) to microgels (including hydrogel-functionalized microcapsules) with various response properties, such as thermo-response, pH-response, pH-/thermo-dual-response, glucose-response, ethanol-response, ion-recognition, molecular-recognition, and so on. Most of the contents in this book represent the fresh achievements of the authors' group on smart hydrogel functional materials. While all chapters can be read as stand-alone papers, together they clearly describe the design concepts, fabrication strategies and methods, microstructures and performances of smart hydrogel functional materials. Vivid schematics and illustrations throughout the book enhance the accessibility of the theory and technologies involved. This is an ideal reference book for a broad general readership including chemists, materials researchers, chemical engineers, pharmaceutical scientists and biomedical researchers, who are interested in designing and fabricating smart hydrogel functional materials for various application purposes. Dr. Liang-Yin Chu is a professor at the School of Chemical Engineering, Sichuan University, China. He is a Distinguished Young Scholar of the National Natural Science Foundation of China and a Distinguished Professor of the "Chang Jiang Scholars Program" of the Ministry of Education of China.