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Titolo	Diagnosis and Robust Control of Complex Building Central Chilling Systems for Enhanced Energy Performance / / by Dian-Ce Gao
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ISBN	981-15-0698-1
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Descrizione fisica	1 online resource (xxv, 224 pages)
Disciplina	697.93
Soggetti	Thermodynamics Building construction Energy systems Automatic control Heat engineering Heat - Transmission Mass transfer Building Physics, HVAC Energy Systems Control and Systems Theory Engineering Thermodynamics, Heat and Mass Transfer
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Dynamic Simulation Platform of the Studied Building Systems -- In-situ Diagnosis of The Low Delta-T Syndrome in The Chilled Water System: A Case study -- System-level Fault Detection and Diagnosis Method for Low Delta-T Syndrome in the Complex HVAC Systems -- Online adaptive Optimal Control Strategy for the Chilled Water System involving Intermediate Heat Exchangers -- Fault-Tolerant Control Strategy for primary-secondary Chilled Water System -- Simplified Online Robust Pump Speed Control Strategy for Practical Implementation -- Model-based Evaluation of The Energy Impact of Low Delta-T Syndrome Using Support Vector Regression.
Sommario/riassunto	This book discusses enhancing the overall energy performance of building central air-conditioning systems through fault diagnosis and

robust control strategies. Fault diagnosis strategies aim to determine the exact cause of problems and evaluate the energy impact on the system, while robust control strategies aim to manage chilled water systems to avoid the occurrence of low delta-T syndrome and deficit flow problems. Presenting the first academic study of the diagnostic method and control mechanism of “small temperature difference syndrome”, the book describes the highly robust and adaptive fault-tolerant control method developed to overcome the influences of external disturbance on the process control in practical applications. The diagnostic technology developed provides a predictive assessment of the energy dissipation effect of the fault. This book is a valuable reference resource for researchers and designers in the areas of building energy management and built environment control, as well as for senior undergraduate and graduate students.