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Nota di contenuto	1. Introduction -- 2. Material and methods -- 3. Modelling and low-level control of SMD systems -- 4. Hierarchical controllers for the optimal operation of SMD plants -- 5. Advanced control and optimization strategies for MD industrial applications -- 6. Conclusions and future works.
Sommario/riassunto	This book offers a systematic study of control algorithms applied in the operation of solar membrane distillation (SMD) facilities. After a short introduction to membrane distillation systems powered by solar energy, it reports on the various stages of the development of a comprehensive operating strategy, based on modelling, control, and optimization techniques, which enables an improved operation of SMD plants helping the commercialization of the SMD technology. A special focus of the research was to maximize the distillate production of the MD modules while reducing their thermal energy consumption, being those two important weaknesses of the current technology, as well as their minimizing operating costs. The optimised operating strategies were tested in a real pilot plant located at Plataforma Solar de Almería

(a dependency of the Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, CIEMAT, of Spain). All in all, this thesis offers extensive information on control and modeling algorithms, and on their practical applications in solar membrane distillation plants.