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Descrizione fisica	1 online resource (143 pages)
Collana	Mechanical Engineering Series, , 2192-063X
Disciplina	621.472
Soggetti	Solar energy Renewable energy sources Electric power-plants Building information modeling Mathematical models Solar Thermal Energy Renewable Energy Power Stations Building Information Modeling Mathematical Modeling and Industrial Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- Modeling and optimization of energetic and exergetic performance of solar air collector -- Expert system based thermal performance analysis of corrugated absorber plate based solar air collector -- Investigation of thermal performance of SAC variables using fuzzy logic-based expert system -- Sustainability assessment of solar air collector using deep learning.
Sommario/riassunto	This book presents insights into the thermal performance of solar thermal collectors using both computational and experimental modeling. It consists of various computational and experimental case studies conducted by the authors on the solar thermal collector system. The authors begin by developing thermal modeling using a case study

that shows the effect of different governing parameters. A few more experimental cases studies follow that highlight the energy, exergy, and environmental performance of the solar thermal collector system and to examine the performance of a modified solar collector system, illustrating performance improvement techniques. Finally, application of different evolutionary optimization techniques such as soft computing and evolutionary methods, like fuzzy techniques, MCDM methods like fuzzy logic based expert system (FLDS), Artificial Neural Network (ANN), Grey relational analysis (GRA), Entropy-Jaya algorithm, Entropy-VIKOR etc. are employed. Covers improvement of solar thermal systems and advances in solar air collector systems, modeling, and optimization; Includes modeling and parametric optimization issues for the practitioners of solar thermal industries; Provides a new method for modeling and optimizing solar air collectors using actual case studies from the field.

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