

1. Record Nr.	UNINA9910811153003321
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Titolo	Thermal design : heat sinks, thermoelectrics, heat pipes, compact heat exchangers, and solar cells / / HoSung Lee
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, 2010
ISBN	1-118-00470-1 1-282-90499-X 9786612904998 0-470-95160-5 0-470-94997-X 1-118-00471-X
Edizione	[1st ed.]
Descrizione fisica	1 online resource (650 p.)
Disciplina	621.402/5
Soggetti	Heat engineering - Materials Heat-transfer media Thermodynamics Thermoelectric apparatus and appliances
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Thermal Design; Contents; Preface; 1 Introduction; 2 Heat Sinks; 3 Thermoelectrics; 4 Heat Pipes; 5 Compact Heat Exchangers; 6 Solar Cells; Appendix A Thermophysical Properties; Appendix B Thermoelectrics; Appendix C Pipe Dimensions; Appendix D Curve Fitting of Working Fluids; Appendix E Tutorial I for 2-D; Appendix F Tutorial II for 3-D; Appendix G Computational Work of Heat Pipe; Appendix H Computational Work of a Heat Sink; Appendix I Tutorial for MathCAD; Index
Sommario/riassunto	"The proposed is written as a senior undergraduate or the first-year graduate textbook, covering modern thermal devices such as heat sinks, thermoelectric generators and coolers, heat pipes, and heat exchangers as design components in larger systems. These devices are becoming increasingly important and fundamental in thermal design across such diverse areas as microelectronic cooling, green or thermal

energy conversion, and thermal control and management in space, etc. However, there is no textbook available covering this range of topics. The proposed book may be used as a capstone design course after the fundamental courses such as thermodynamics, fluid mechanics, and heat transfer. The underlying concepts in this book cover the, 1) understanding of the physical mechanisms of the thermal devices with the essential formulas and detailed derivations, and 2) designing the thermal devices in conjunction with mathematical modeling, graphical optimization, and occasionally computational-fluid-dynamic (CFD) simulation. Important design examples are developed using the commercial software, MathCAD, which allows the students to easily reach the graphical solutions even with highly detailed processes. In other words, the design concept is embodied through the example problems. The graphical presentation generally provides designers or students with the rich and flexible solutions toward achieving the optimal design. A solutions manual will be provided"--

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