

1. Record Nr.	UNINA9910131536103321
Autore	Fohr Jean-Paul
Titolo	Heat and moisture transfer between human body and environment / / Jean-Paul Fohr
Pubbl/distr/stampa	Hoboken, NJ : , : Wiley, , 2015
ISBN	1-5231-1080-5 1-119-24560-5 1-119-24561-3 1-119-24562-1
Descrizione fisica	1 online resource (140 p.)
Collana	Focus fluid mechanics series
Disciplina	620.106
Soggetti	Fluid dynamics - Mathematical models Heat - Transmission Human physiology Water vapor transport Body temperature - Regulation Electronic books.
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	Table of Contents; Title; Copyright; Preface; 1: Building a Model for a Coupled Problem; 1.1. Basic equations of the models (Appendix 1); 1.2. Boundary layers; 1.3. Heat balance for a "system" and boundary conditions [FOH 10]; 1.4. On the problem of cooling of a cup of tea; 1.5. Bather on a beach; 2: Approximate Determination of Transfer Coefficients; 2.1. Natural convection around an isolated sphere; 2.2. Coupled exchanges around the head of a baby lying down; 2.3. Forced convection around a cylinder; 3: Human Thermal Models; 3.1. The Fanger model: from climatic chamber to standard [FAN 70] 3.2. Gagge model 3.3. Stolwijk 25 node model [STO 70, STO 71]; 3.4. Thermal model of a baby lying down; 4: Heat and Humidity Transfer in Clothing; 4.1. From heterogeneous porous to continuous model media; 4.2. Heat diffusion and convection; 4.3. Vapor diffusion; 4.4. The effect of bound water; 4.5. Liquid water diffusion; 4.6. Mass and energy balances; 4.7. Limit conditions; 4.8. Processing for a numerical

resolution; 4.9. First example: condensation in a multilayer; 4.10. Convection and diffusion; 4.11. Taking account of radiation; 4.12. Second example: firefighters' clothing  
4.13. Traditional warm weather clothing

APPENDICES; Appendix 1: Heat and Mass Transfer Toolkit; A1.1. Global mass conservation; A1.2. Momentum conservation; A1.3. Energy conservation or the first principle of thermodynamics; A1.4. Vapor mass conservation; A1.5. Energy balance in a finite volume (material system); A1.6. Energy balance on surface subject to evaporation or condensation and radiation; A1.7. Some heat exchange correlations for air and water [BEJ 93]; Appendix 2: Humid Air; Appendix 3: Solar Flux; Bibliography; Index; End User License Agreement

---