

About the Book

This book address the concept and applications of finite time thermodynamics to various thermal energy conversion systems including heat engines, Heat pumps, and refrigeration and air conditioning systems. The book is the first of its kind, presenting detailed analysical formulations for the design and optimization of various power-producing and coolig cycles including but not limited to:

- *Vapour powercycles*
- *Gas power cycles*
- *Vapour compression cycles*
- *Vapous absorption cycles*
- *Rankine cycle coupled refrigeration systems*

Further the book addresses thermoeconomic analysis for the optimization of thermal cycles which is of particular importance in the present age, which is characterized by multi-objects regarding energy, ecology, the environment and economics.

Contents:

1. *General introduction and the concept of finite time thermodynamics*
2. *Finite time thermodynamic analysis of carnot and ranking heat engines*
3. *Finite time thermodynamic analysis of brayton cycle*
4. *Finite time thermodynamic analysis of modified brayton cycle*
5. *Finite time thermodynamic analysis of complex brayton cycle*
6. *Finite time thermodynamic of stirling and ericsson power cycles*
7. *Finite time thermodynamics of vapour compression refrigeration airconditioning and heat pump cycles*
8. *Finite time thermodynamics of cascaded refrigeration and heat pump cycles*
9. *Finite time thermodynamics of ranking cycle air-conditioning and heat pump cycles*
10. *Finite time thermodynamics of brayton refrigeration cycle*