OPEN QUANTUM SYSTEMS AND QUANTUM THERMODYNAMICS

TAUGHT BY

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COURSE TOPICS

1. introduction to quantum mechanics and linear algebra
2. quantum states, density matrices, and von neumann algebra
3. quantum dynamics: from unitary operations to completely positive trace preserving maps.
4. Operator sum representation and introduction to basic quantum channels
5. quantum dynamical equations: from schrödinger equation to quantum master equations.
6. entropy production and laws of thermodynamics.
7. application: introduction to quantum heat engines.

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2

TEXT BOOKS

1. john preskill lecture notes

2. theory of open quantum systems ; brewer.

3. lecture notes in open quantum systems ; alicki.