COURSE DETAIL

QUANTUM INFORMATION THEORY
Country Denmark
Host Institution University of Copenhagen
Program(s) University of Copenhagen
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Physics Mathematics Computer Science
UCEAP Course Number 132
UCEAP Course Suffix
UCEAP Official Title QUANTUM INFORMATION THEORY
UCEAP Transcript Title QUANTUM INFO THEORY
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course introduces the mathematical formalism of quantum information theory. Topics include a review of probability theory and classical information theory (random variables, Shannon entropy, coding); formalism of quantum information theory (quantum states, density matrices, quantum channels, measurement); quantum versus classical correlations (entanglement, Bell inequalities, Tsirelson's bound); basic tools (distance measures, fidelity, quantum entropy); basic results (quantum teleportation, quantum error correction, Schumacher data compression); and quantum resource theory (quantum coding theory, entanglement theory, application: quantum cryptography).

Language(s) of Instruction
English

Host Institution Course Number
NMAK14020U

Host Institution Course Title
QUANTUM INFORMATION THEORY

Host Institution Course Details
https://kurser.ku.dk/course/nmak14020u/2022-2023

Host Institution Campus

Host Institution Faculty
Science

Host Institution Degree
Master

Host Institution Department
Mathematical Sciences

Course Last Reviewed
2022-2023

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