Model of standards-based curriculum

Master's programs for graduate students

Foundations of quantum information

- Advanced quantum computation
- Advanced quantum algorithms
- Quantum programming language
- Quantum coding theory
- Advanced quantum Shannon theory
- Advanced quantum cryptography
- Quantum error correction
- Quantum machine learning
- Geometry of quantum information

Physics of quantum information

- Advanced theory of quantum entanglement
- Quantum input-output protocol
- Quantum control theory
- Atypical quantum algorithm
- Quantum thermodynamics
- Quantum simulation
- Methods of numerical calculations for quantum information theory (SDP, ML, etc.)

Quantum devices

- Estimation theory and evaluation of quantum device

Engineering for quantum computer

- Foundations of quantum compiler
- Foundations of quantum architecture
- Exercises of classical compiler for quantum computing
- Exercises for classical computer architecture for quantum computing
- Exercises of classical OS for quantum computing
- Architecture for fault tolerant quantum computation
- programming language of fault tolerant quantum computer and quantum machine, and design of compiler

Quantum communication and networks

Spiral approach

- Differential equation and complex analysis
- Signal and communication
- Graph theory and group theory
- Information theory
- Theory of cryptography

- Quantum communication theory
- Quantum cryptography system
- Science of quantum networks

Common subjects

- Entrepreneurship
- Legal development and quantum technology
- Public relations of advanced science

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