00. QUANTUM INFORMATION SCIENCE

01. PHYSICS AND INFORMATION SCIENCE

01.10.+i Encoding, processing and transmission of information via physical systems
01.20.+e Reversibility and irreversibility in information processing
01.30.+r Quantum states and dynamics as a resource for information processing
01.40.+n Entanglement as a resource for information processing
01.50.+e Entropy and other measures of information

02. FUNDAMENTAL PROBLEMS

02.10.+t Quantum-Classical Transition
02.20.+c Mesoscopic and Macroscopic Quantum Coherence
02.30.-n Entanglement, nonlocality, complementarity
02.30.Bi Bell inequalities
02.30.An Bell theorem without inequalities
02.30.Lh Loopholes in Bell-type experiments
02.40.+d Interaction with environment
02.50.+r Reference frames in quantum mechanics
02.60.+g Geometric/topological phases
02.70.+a Theories alternative to quantum mechanics
02.80.+i Fundamentals of quantum interference (quantum eraser, which-way information, etc.)
02.90.+f Foundational issues of quantum mechanics

03. ENTANGLEMENT

03.02.+s Separability properties
03.05.+c Characterization and classification of entanglement
03.10.+m Entanglement measures
03.20.+w Entanglement detection/witnesses
03.25.+y Entanglement catalysts
03.30.+e Entangling/Disentangling power of quantum evolutions and transformations
03.40.+t Thermal/mixed state entanglement
03.50.+b Bound entanglement
03.60.+i Entanglement of identical particles and statistics
03.70.+c Entanglement versus correlation
03.80.+p (Theory of) purification, distillation, concentration
03.90.+m (Other) mathematical aspects of composite quantum systems

04. ENTANGLEMENT IN MANY-BODY SYSTEMS

04.10.+s Entanglement in spin models/oscillator chains
04.20.+b Squeezing and entanglement in quantum degenerate gases and BCS model
04.25.+l Entanglement in solid state systems, Luttinger liquids, etc.
04.30.+p Entanglement in phase transitions
04.40.+c Entanglement, chaos and disorder
04.50.+m Efficient simulation of quantum many-body systems
04.60.+s Entanglement in mesoscopic/macroscopic systems
04.70.+m Multi-particle/multi-photon entanglement
04.80.+d Entanglement dynamics in composite quantum systems
04.90.+t Entanglement transfer

05. CROSS DISCIPLINARY LINKS

05.05.+r Quantum information & relativity/cosmology
05.10.+s Quantum information & quantum statistics
05.20.+c Quantum information & quantum chaos
05.30.+t Quantum information & thermodynamics
05.40.+n Quantum information & neural networks
05.50.+a Quantum information & adaptive learning and feedback control
05.60.+c Quantum information & chemistry
05.70.+o Quantum information & quantum control
05.80.+m Quantum information & complex systems
05.90.+p Quantum information & quantum field theory/particle physics

06. QUANTUM MEASUREMENTS

06.10.+d Dynamics of the measurement process
06.15.+e Measurement-induced transformations
06.20.+m Quantum measurement theories
06.25.+n Quantum non-demolition measurements
06.30.+p Positive Operator Valued Measurements (POVM's)
06.35.+w Weak measurements
06.40.+z Quantum Zeno effect
06.50.+t Tomographic state reconstruction
06.60.+r Non-tomographic state reconstruction/estimation
06.70.+e Phase estimation
06.80.+s Quantum state discrimination
06.85.+o Quantum operator discrimination/reconstruction
06.90.+m Parameter estimation

07. MATHEMATICS OF HILBERT SPACE

07.10.+r State representations (quasi-probability distributions, Poincare' sphere, Stokes parameters, etc.)
07.20.+b Properties of special bases
07.30.+o Properties of operators
07.40.+d Distance between states
07.50.+n No-go theorems
07.60.+s Special states (graph states, cluster states, etc.)

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