### 1. Quantum Algorithms and Optimization (7 titles)
- Quantum Algorithm for Linear Response of Nuclei
- Quantum PC algorithm: data-efficient and nonlinear causal discovery
- Quantum Algorithm for Searching Resonant Frequency based on Frequency Response Encoding
- Hybrid Quantum Search Algorithm for Solving the Multi-Dimensional Knapsack Problem
- Minimizing Trotter Approximation Error in Quantum Phase Estimation Using Genetic Algorithm
- Quantum Fourier Transform of Atrial Fibrillation
- Arbitrary State Preparation via Quantum Walks

### 2. Quantum Error Correction and Mitigation (7 titles)
- Advanced Zero Noise Extrapolation for Quantum Error Mitigation
- Introducing Ambiguity Clustering: an accurate and efficient decoder for qLDPC codes
- Rate Adjustable Bivariate Bicycle Codes for Quantum Error Correction
- Pauli Check Extrapolation for Quantum Error Mitigation
- Optimal decoding of 2D compass codes under coherent noise
- Pauli Check Sandwiching for Quantum Characterization and Error Mitigation during Runtime
- Parity codes in space and time

### 3. Quantum Machine Learning and Neural Networks (7 titles)
- Hybrid Quantum-Classical Neural Network For Diagnosis of Autism Spectrum Disorder
- Emulation of QAOA via Graph Neural Networks
- Learning Spatiotemporally Correlated Noise in Multi-Qubit Systems with Neural Networks
- Quantum-enhanced Spiking Neural Networks
- Neural Quantum Annealing for real-world Quadratic Unconstrained Binary Optimization
- Next-Generation Vehicle Platooning: Leveraging Quantum Long Short-Term Memory Networks
- Quantum Support Vector Machine-Based Classification of GPS Signal Reception Conditions

### 4. Quantum Circuit Design and Implementation (7 titles)
- Circuit Implementation of Discrete-Time Quantum Walks on Complex Networks
- Quantum Circuit Fragments: Efficient and verifiable format for quantum circuits
- Automated cut finding and circuit knitting on large quantum circuits
- General-purpose Quantum Circuit Generator for Partially Fault-Tolerant Quantum Computing Architecture
- Hypergraphic partitioning for spatial and temporal quantum circuit cutting
- Analyzing Quantum Circuit Depth Reduction with Ancilla Qubits in MCX Gates
- Qsyn: A Developer-Friendly Quantum Circuit Synthesis Framework for NISQ Era and Beyond

### 5. Quantum Annealing and QUBO Problems (7 titles)
- Optimization of quantum annealing for the capacitated vehicle routing problem
- QUBO Coefficient Dynamic Ratio Shrinking Method for Quantum Annealers
- Optimization of Base Station Power Supply Selection by Quantum Annealing
- Quantum Annealing for the Set Splitting Problem
- Multi-Task Quantum Annealing for Rapid Multi-Class Classification
- Adiabatic Computing for Power Flow Analysis
- An Innovative Hunting-based Quantum-inspired Jaguar Algorithm for Combinatorial Optimization

### 6. Quantum Natural Language Processing (7 titles)
### Quantum Natural Language Processing Application for Estimating SQL Query Metrics

- Fast variational knowledge graph embedding
- Semantic Similarities using Classical Embeddings in Quantum NLP
- Entangled Meanings: Classification and Ambiguity Resolution in Near-Term QNLP
- QUACE: symmetrized molecular descriptors on a quantum circuit
- Enabling Quantum Natural Language Processing for Hindi Language
- Quantum Circuit Complexity of Genomic Data Encoding

### Quantum Hardware and Control Systems (7 titles)

- Square-wave defined pulse generator for high fidelity gate operation of superconducting qubits
- Scalable Room Temperature Control Electronics for Advanced High-Fidelity Qubit Control
- Global control in a superconducting quantum computer
- The Quantum Interface Controller: A Full-Stack, Modular, and Scalable System for Qubit Readout and Manipulation
- A Microwave-based QCCD Trapped-Ion Quantum Computer with Scalable Control System
- An FPGA-based Quantum Control System with a Runtime Configurable Signal Generator
- System-agnostic quantum pulse experiments implemented with ARTIQ

### Quantum Simulation and Chemistry (7 titles)

- Large-sized VQE Performance Profiling in Quantum Chemistry using a Multi-node Quantum Simulator
- Performance Evaluation of the Intel Quantum Simulator on the Lusitania Supercomputer
- Simulations of Quantum Approximate Optimization Algorithm on HPC-QC Integrated Systems
- Non-unitary Trotter circuits for imaginary time evolution
- Simulating Quantum Field Theories on Gate-Based Quantum Computers
- Quantum Computing Simulation of a Phase Change in a Cavity Quantum Electrodynamics Hamiltonian
- Simulation of a One-Dimensional CFD Problem Using a Quantum Computing Approach

### Quantum Networking and Communication (7 titles)

- Enhanced Quantum Secret Sharing with Reduced Resource Consumption through GHZ Entanglement
- Optimal Monitor Placement in Quantum Network Tomography
- A Quantum Data Center Network Architecture
- Biphoton Quantum State Tomography and Spin-orbit Conversion in C+L Telecom Bands
- Towards Rare-Earth Molecular Crystals as a New Platform in Quantum Networks
- Denoising Wavelength-multiplexed Time-bin Correlated Photons for Quantum Networks
- A Scalable Framework for Automation of Quantum Network Experiments

### Quantum Computing Applications in Specific Domains (8 titles)

- Multi-day Intermodal Trip Planning Using subQUBO Annealing with Correction Processing
- Personalized Course Selection Optimization Using an Ising Machine
- Solving the Product Breakdown Structure Problem with constrained QAOA
- Exploring Utility in a Real-World Warehouse Optimization Problem: Formulation Based on Quantum Annealers and Pr
- Hybrid Quantum-Classical Algorithm for Solving Capacitated Vehicle Routing Problems
- Performance Analysis of QUBO-translated Non-maximum Suppression for Object Detection
- Quantum-Powered Defenses Against Adversarial Onslaughts for Histopathological Cancer Detection
- Quantum Computing in Medical Diagnostics: A QSVM Approach to Alzheimer’s Disease Classification

### Quantum-Classical Hybrid Approaches (7 titles)

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<td>Towards Explainability of Classical Neural Network via Quantum Computing</td>
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<td>Distributing Quantum Computation Across Multiple NISQ Computers</td>
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<td>Fault-tolerant quantum computing with the parity code: discrete and bosonic concatenations</td>
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<td>Advanced Resource Estimation through Lattice Surgery Compilation and Logical Error Modeling</td>
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<td>Accelerating Quantum Subcircuit Reconstruction Utilizing Multi-Node Computation</td>
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<td>Utilizing Don’t-Cares to Minimize CNOTs in Synthesizing NNA Compliant Quantum Circuits</td>
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<td>QubiCML: ML-Powered Real-Time Quantum State Discrimination Enabling Mid-Circuit Measurements</td>
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<td>A Power Reduction Scheme by Arithmetic Format Conversion for a DSP to Estimate Qubit States Under 4K Cryogenic</td>
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<td>Cryogenic Characterization of a 5-6 GHz LC VCO for CMOS-Quantum Co-Integration</td>
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**17. Quantum-Inspired Classical Algorithms (7 titles)**
- Non-zero Coefficients Removing Method to Improve the Ising Machine Solving Performance
- Physical Properties of Error Reduction Algorithms for Ising Machines
- Engineering Discrete Simulated Bifurcation for an FPGA Digital Ising Machine
- Towards Quantum Circuit Emulation on Low-Tier FPGAs
- Quantum-Inspired Acceleration for Image Reconstruction on Ising Machines
- Qutrit-based Quantum-inspired Optimization Model on Real-world Portfolio Optimization
- Adapting Developing Quantum Circuit Synthesis with a Multi-objective Quantum-inspired Optimization

**18. Quantum Cryptography and Security (7 titles)**
- A Heuristic Error Analysis Framework for Error Bottleneck Identification in Gate-based Quantum Algorithms
- Identification and Mitigating Bias in Quantum Machine Learning
- A ML Based Approach to Quantum Augmented HTTP Protocol
- Demonstrating Quantum Homomorphic Encryption Through Simulation
- Analysis of A Malicious Deutsch-Jozsa Circuit
- Linear Polarization-based Entanglement of a Single Photon, 2-Qubit Spatial Mode System
- Quantifying the Limits of Classical Machine Learning Models Using Quantum Contextuality

**19. Quantum Computing Performance and Benchmarking (8 titles)**
- Enhancing Convergence in Variational Quantum Eigensolver Using CoolMomentum
- Efficient training of layerwise-commuting PQCs with parallel gradient estimation
- Updated QubiC: Improved scalability, performance, and QPU support
- Quantum/AI Topology-Aware Latency-Adaptive HPC Workflow Scheduling Optimization
- Towards a Distributed Quantum Computing Platform for Algorithm Experiments
- Multi-FPGA system for quantum error correction with lattice surgery
- Preliminary Design Space Exploration for ASIC Implementation of Control Systems in Fault-Tolerant Quantum Comp
- Parallel Minimum-Weight Parity Factor Decoding for Quantum Error Correction

**20. Miscellaneous Quantum Computing Topics (7 titles)**
- Mixerless RFSoC Microwave Signal Generation for Superconducting Circuit Applications
- Super Heterodyne Mixer Front-End Module for Qubit Readout and Manipulation
- Frequency-Conversion Beamsplitting in Transmissive Superconducting Spatiotemporal Metasurfaces for cQED
- Accelerating Counting Using Tensor Networks
- Compiler Development for Neutral Atom Quantum Computers
- Towards Readout-Aware Layout Synthesis for Spin Qubit Systems with Double Quantum Dot Readouts
- Distributed Quantum Computing Platform for Algorithm Experiments
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