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Nota di contenuto	Title -- Preface -- Contents -- Quantum Cryptography -- Optimal local protocols for processing of entangled states - local cloning and eavesdropping -- Commercial potential of quantum cryptography -- Quantum voting via NV centers in diamond -- Tools for optical implementations of quantum communication protocols with application to quantum key distribution -- Phase-time coding quantum cryptography -- Simplifying information-theoretic arguments by post-selection -- QKD: a million signal task -- On practical implementations of qudit-based quantum key distribution protocols -- Trusted noise in continuous-variable quantum key distribution -- Eavesdropping on the LM05 secure communication protocol -- Quantum Computing -- Quantum algorithms for formula evaluation -- Tradeoffs for reliable

quantum information storage in 2D systems -- Quantum algorithm for preparing thermal Gibbs states - detailed analysis -- Spin-Hamiltonian analysis of quantum registers on single NV center and proximal 13C nuclei in diamond -- Physics for Quantum Information Processing -- Multimode detection of broadband squeezed vacuum -- Superadditivity of multiple access gaussian channels -- Multi-pixel sources of entangled light in the correlation measurements without homodyne detection -- Nonmultiplicativity of probability of faithful teleportation in the Knill-Laflamme-Milburn scheme -- Continuous variable entanglement creation by means of small cross-Kerr nonlinearity -- Multi mode nano scale Raman echo quantum memory -- Local bounds for general Bell inequalities with the reduced entropy of the settings -- Atomic quantum memories for light -- Observable measures of entanglement -- Solid state hybrid devices for quantum information processing -- Subject Index -- Author Index.

Sommario/riassunto

This volume contains papers presented at the NATO Advanced Research Workshop September 9-12, 2009, "Quantum Cryptography and Computing: Theory and Implementation", that was held in Sopot, Poland and organized by the National Quantum Information Centre of Gdansk. The papers are related to three broad subjects. The first is quantum cryptography, which includes technical and experimental issues and theory in a wide range of topics from the fundamental information-theoretical to commercial quantum cryptography. The second subject is quantum computing, in particular, some quantum algorithms are analyzed and basic restrictions for quantum memory are presented. The last part is closely related to the physics of quantum information processing. It includes solid state devices for quantum information processing, quantum memories and superadditivity effects for quantum resources. The book is of interest and recommended to researchers and graduate students of experimental and theoretical quantum information.Its unique feature is contributions by experts from both the West and the former Soviet Union.