Quantum computation and quantum information

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This special issue of Mathematical Structures in Computer Science contains several contributions related to the modern field of Quantum Information and Quantum Computing.

The first two papers deal with entanglement. The paper by R. Mosseri and P. Ribeiro presents a detailed description of the two- and three-qubit geometry in Hilbert space, dealing with the geometry of fibrations and discrete geometry. The paper by J.-G. Luque *et al.* is more algebraic and considers invariants of pure k-qubit states and their application to entanglement measurement.

The paper by J.-Y. Girard is concerned with the foundations of logic in a way inspired by quantum formalism, and discusses the logical notion of truth.

The final two papers are reviews from the perspective of theoretical physics in the area of quantum computing and quantum information. The paper by V. Kendon presents the up-to-date theory of quantum walks in relation to decoherence. The contribution by B. Georgeot is concerned with the application of quantum chaos methods to the theory of chaotic complexity.

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Guest editor of the special issue.