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Section:

14. Mathematical Aspects of Computer Science

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Mascari, Gianfranco, Coniglio Nazionale delle Ricerche, Italy

From TQFT to TQCT

An approach to the study of mathemaical models of systems can be obtained by studying some functors from categories associated to such systems to categories of models. Topological Quantum Field Theory follows this approach for quantum physical systems. Categorical Logic and its applications in Computation Theory follow this approach for deductive and computing systems. Based on such an approach to models of physical and logical systems, a niew view of some basic issues of Quantum Computing and some preliminary results in the proposed *Topological Quantum Computation Theory*will be presented.

Reference: G. Mascari, Quantum Computation: Structure and Dynamics DIMACS Quantum Computation Workshop and Tutorial, August 1997, P. Shor (Chair), Princeton University.