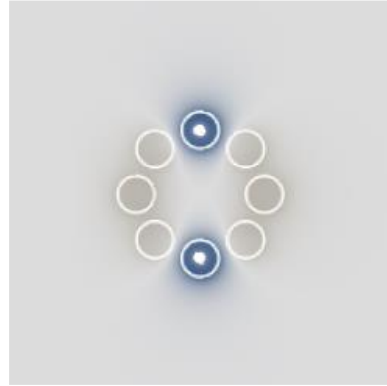


QCA

Quantum-dot cellular automata

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Quantum-dot Cellular Automata (QCA), devices composed of quantum-dot cells, represent one of the possible platforms that could eventually replace transistors in integrated switching circuits. Our group, with the premise that future processing platforms should not disregard the advantages of multi-valued processing, was the first to propose a quantum-dot cell capable of ternary processing. Our research activities are concentrated on the general problem of planning and routing in quantum-dot cellular automata, the analysis of the ternary quantum-dot cell parameter space, but mostly with processing structures implemented using ternary quantum-dot cells.

The ternary quantum-dot cell and ternary logic.
doi:10.1088/0957-4484/17/8/023

Towards the bottom-up concept: extended quantum-dot cellular automata.
doi:10.1016/j.mee.2006.01.119

Adiabatic pipelining: A key to ternary computing with quantum dots.
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Two-layer synchronized ternary quantum-dot cellular automata wire crossings.
doi: 10.1186/1556-276X-7-221

Solving the ternary quantum-dot cellular automata logic gate problem by means of adiabatic switching.
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Multi-valued logic based on quantum-dot cellular automata
International Journal of Unconventional Computing, 3(4):311-322.

The ternary quantum-dot cellular automata memorizing cell.
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The key elements of logic design in ternary quantum-dot cellular automata.
doi: 10.1007/978-3-642-21341-0_21

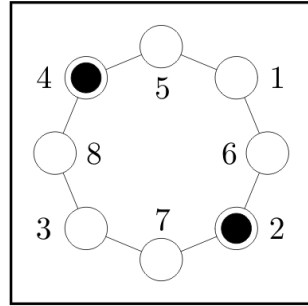
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Information Science



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Kvantni celični avtomati (angl. Quantum-dot Cellular Automata, QCA), sestavljeni iz kvantnih celic, predstavljaja eno izmed tehnologij, ki bi v integriranih vezjih lahko nadomestila današnje tranzistorje. Naša skupina je kot prva predstavila kvantno celico, ki omogoča več-vrednostno procesiranje. V naših raziskavah se ukvarjamo s splošnim problemom razmeščanja in povezovanja logičnih primitivov v dvo-vrednostnih in več-vrednostnih QCA, analizo časovne dinamike več-vrednostne kvantne celice, ter snovanjem procesnih struktur v več-vrednostnih QCA.

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