WIENER PHYSIKALISCHEN KOLLOQUIUM

QUANTUM INFORMATION PROCESSING AND METROLOGY USING FEW ELECTRON SPINS IN SOLIDS

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Quantum computing and information processing use quantum two level systems as their building blocks. Solid-state implementations of quantum bits use, for example, single or few electron spins confined to small spatial dimensions. Harnessing the interaction of such electron spins with their environment offers intriguing possibilities for coherent electrical manipulation and controlled generation of entanglement with promising applications in nanoscale imaging and metrology.

Montag, 25. November 2013, 17:30 Uhr (ab 17:00 Uhr Kaffee)

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