



HYP*MOL

HYPERPOLARIZATION
IN MOLECULAR SYSTEMS

POLARIZATION | TRANSPORT | REACTIVITY

Open Colloquium of the TRR 386

Technische Universität Chemnitz, Reichenhainer Straße 90

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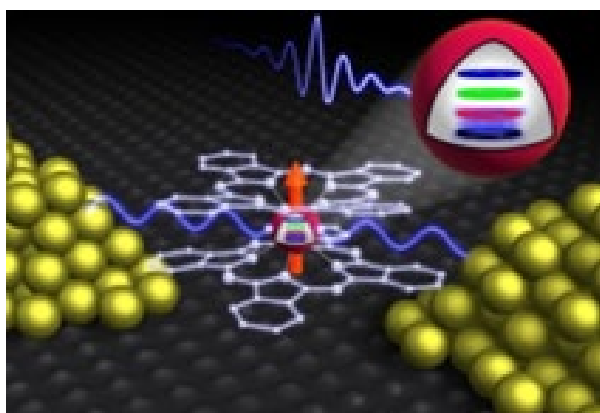


Quantum Computing with Molecules

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Nuclear spin states in molecules will be proposed to act as quantum registers for Quantum Computing (QC). We report on the implementation of metal complexes into nanometre-sized spintronic devices by a combination of bottom-up self-assembly and top-down lithography techniques. The controlled generation of magnetic molecular nanostructures will be shown and persistence of their magnetic properties under confinement in Molecular Quantum Devices will be proven. The Hilbert space spanned by the nuclear spins will be engineered synthetically and addressed both electrically and optically, partially at the single molecule level.¹⁻¹³ Finally, Grover's quantum search algorithm will be implemented on the nuclear spin register of a TbPc₂ Qudit.¹⁰



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