MA07-011 - Schrödinger operators with subperiodic lattice symmetries: applications to quantum wires and STM

Zusammenfassung

The project "Schrödinger operators with subperiodic lattice symmetries: applications to quantum wires and STM" deals with mathematical modeling and computational methods for crystalline matter with only subperiodic lattice symmetry. In situations when the full lattice symmetry is broken, like at crystal surfaces, quantum wires, step edges, nanotubes one has to apply different methods to describe the electronic and magnetic structure of the system under study. The scientific goal of this project is to better understand the electronic and magnetic structure of structures being of potential high relevance for the design of nanodevices. This project represents an interdisciplinary approach of a mathematics, a computational physics and an experimental physics group.

Keywords:
Time independent quantum mechanics, SchrÃ¶dinger operators,electronic structure, subperiodic lattices, quantum wires, Blochtheorem, Multiple Scattering Theory, Nanostructures, Greens function,KKR, linear transport

---

Principal Investigator: Robert Hammerling

Institution: Wolfgang Pauli Institute

Status: Abgeschlossen (01.01.2008 - 31.12.2011)

Weiterführende Links zu den beteiligten Personen und zum Projekt finden Sie unter
https://www.wwtf.at/funding/programmes/past/ma/MA07-011/