The novel real-time detection method for the switching state allows to desig magneto-optic devices based on a defined monomolecular layer of iron spin-crossove complexes e.g. sensors, magneto-optic memory devices, molecular switches, etc.

Thus, extreme miniaturisation and shortest response time can be combined. Suc molecular spin-crossover based devices are seen as potential successors to today' hard disc drives.

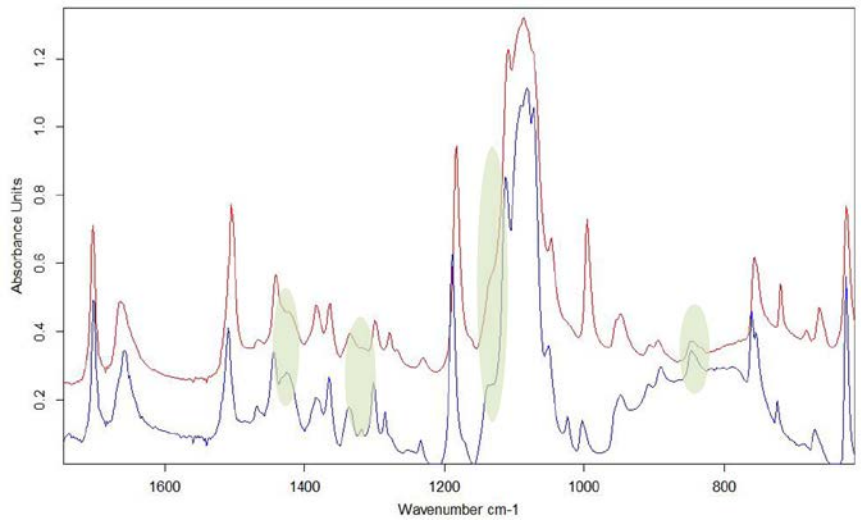

Figure 2: Polarised spectra, highlighting the variation between the two switching states

The cost and power of such miniaturised devices are extremely low, making then highly competitive. Memories built from these devices could ultimately surpas mainstream conventional hard disc drives in density, speed, and cost. Furthermore molecular spin-crossover compounds can pave the way for radically new devic concepts. However, unknotting the full potential of molecules for spin-crossove complexes as monolayers is promising scientific and technological rewards.

ADVANTAGES

- Top-down approach towards switchable monolayers
- Deposition of ionic spin crossover materials
- No limitations regarding design due to surface self-assembly
- Detection of spin state (switching state) in real-time
- Non-destructive read-out concept
- Combination with established technology (polarised light)
- Miniaturisation of electronic devices down to molecular level

CONTACT:
Daniel Rottenberg
TU Wien
Research and Transfer Support
T: +43.1.58801.415246
daniel.rottenberg@tuwien.ac.at
www.rt.tuwien.ac.at