



Katedra anorganické chemie,
Přírodovědecká fakulta UP v Olomouci

a

Česká společnost chemická – olomoucká pobočka

Vás společně zvou na přednášku

Elucidating Predictable Tuning by Ligand Design in Coordinatively Elastic Multifunctional Spin Switches

Dr. Sriram Sundaresan

Department of Magnetism and Superconductors, FZU-Institute of Physics of Czech Academy of
Sciences

Anotace: Spin crossover (SCO) is a phenomenon exhibited by some octahedral d4-d7 transition metal complexes, whereby an external perturbation can switch the metal ion between the low-spin and high-spin states. Designing new molecular system combining SCO phenomenon with other attractive properties for example luminescence that could sense the spin-state transition signal rippling through the molecular system has a wide range of applications including sensors, displays and switches. Recently we have also combined chirality with SCO. Introducing a chiral element into a SCO active complex scaffold enables imparting enantioselective properties with futuristic application in spintronics and non-linear optics. In order to efficiently develop this multifunctional system for real life applications, it would be helpful to tune the switching temperature $T_{1/2}$ by ligand design. Beyond conventional SCO systems, valence tautomerism (VT) in cobalt complexes presents another fascinating form of bi-stability, where an intramolecular electron transfer occurs between the metal centre and a redox-active ligand, typically switching between low-spin Co(III)-catecholate and high-spin Co(II)-semiquinonate states. Such systems provide both spin and charge degrees of freedom, enabling electronic tuning through ligand modification and external stimuli such as light, temperature, or pressure. This presentation will describe-from synthesis and characterisation, to tuning of $T_{1/2}$ in 1,3,4-heterodiazole based Fe(II) spin crossover complexes and a novel bis-tetradentate innocent ligand bridged Co VT complexes.

Přednáška se bude konat v pátek 7.11. 2025 ve 13:00 v učebně 3.003, budova PŘF
UPOL, 17. listopadu 12, Olomouc.

Doc. Jan Petr, Ph.D.
předseda pobočky ČSCH

Doc. Radovan Herchel, Ph.D.,
Vedoucí katedry