

SEMINARIUM

**VISITING
PROFESSOR
PROGRAMME**

Dr Jerzy Krzystek

National High Magnetic Field Laboratory (MagLab)
Florida State University, Tallahassee, USA

will deliver a lecture titled:

High-frequency and -field Electron Paramagnetic Resonance (HFEPER) applied to certain perovskites

DATE: Thursday, 13 June 2019 | 10.30

VENUE: CNBCh UW, seminar room 0.37

ABSTRACT:

A perovskite-type material of general formula: $\text{YIn}_{1-x}\text{Mn}_x\text{O}_3$ with $0.02 < x < 0.2$ displays very unusual optical properties in that for modest Mn(III) ion content it displays intense blue color, very unusual for manganese compounds. This property has already been applied in creating versatile blue pigments. In my presentation I will cover the history of the quest for a perfect blue dye and/or pigment dating back to ancient Egypt and China. More recently, we have investigated the correlations between the optical (i.e. electronic) properties with magnetic ones via HFEPER. In particular, spin Hamiltonian parameters of the ground quintet ($S = 2$) spin state of manganese(III) can be linked to the electronic structure of that ion on several levels of theory, starting with a simple ligand-field approach more typically applied in coordination chemistry.



Activity at Home University:

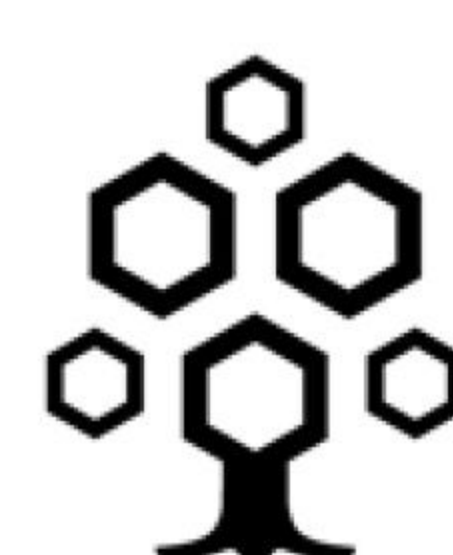
Research Faculty III at the MagLab (equivalent to Full Research Professor at FSU)

Research field:

Electron Spin/Paramagnetic Resonance at (very) high frequencies and magnetic fields (HFESR/EPR); Far-Infrared Magnetic Spectroscopy (FIRMS).

Research interest and experience:

Coordination chemistry of transition metals from the perspective of (a) catalytic activity, (b) bioinorganic chemistry and (c) single-molecule magnetic properties.



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