



INVITATION

DQMP informal-Seminar
Materials Chemistry Seminar



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Thursday, 27 April 2023, 14:15

Lecture Hall: **Auditoire STÜCKELBERG, Ecole de Physique**

“Engineering Geometry and Symmetry in Molecular Magnetism”

Abstract: The functional group is an immensely successful concept – possibly the defining one in preparative organic chemistry. However, it is largely lacking in inorganic chemistry. While assembly of discrete coordination complexes into more complicated structures of varying dimensionality is commonplace, the versatility of such approaches nowhere matches the synthetic control which is routine in organic synthesis. In this presentation it will be argued that a significant broadening of the palette of orthogonal reactivities available to the preparative coordination chemist can be reached by consideration of metallophilic interactions and by systematic exploitation of ligand-metal preferences as conventionally expressed by the Pearson HSAB principle. Additionally it will be argued that rules for preferred geometries of ligands bridging metal centers can serve as strong predictors for the resulting structures.

Some successes in using functional-inorganic modules in targeted construction of more complex structures will be illustrated. These range from the use of robust fluoride complexes in assembly of mixed transition metal - lanthanide complexes[1] to the targeted synthesis of actinide chains directed by platinum-platinum metallophilic interactions.[2]

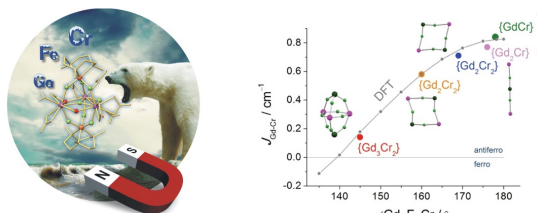


Figure: Geometric weakening magnetic coupling in hetero-metallic complexes. [1]

[1] Pedersen, K.S., Lorusso, G., Morales, J.J., Weyhermüller, T., Piligkos, S., Singh, S.K., Larsen, D., Schau-Magnussen, M., Rajaraman, G., Evangelisti, M. and Bendix, J. *Angew. Chem. Int. Ed.*, 2014, 2394

[2] Sørensen, M.A.; Hansen, U.B.; Perfetti, M.; Pedersen, K.S...Bendix, J. *Nature Communications*, 2018, 9, 1292

Host: Prof. Dr. Fabian von Rohr