Minicolloque n° MMPS26 ■ **Oral** □ **Poster**

Metal-organic magnets with large room temperature coercivity and ordering temperature up to 515 K

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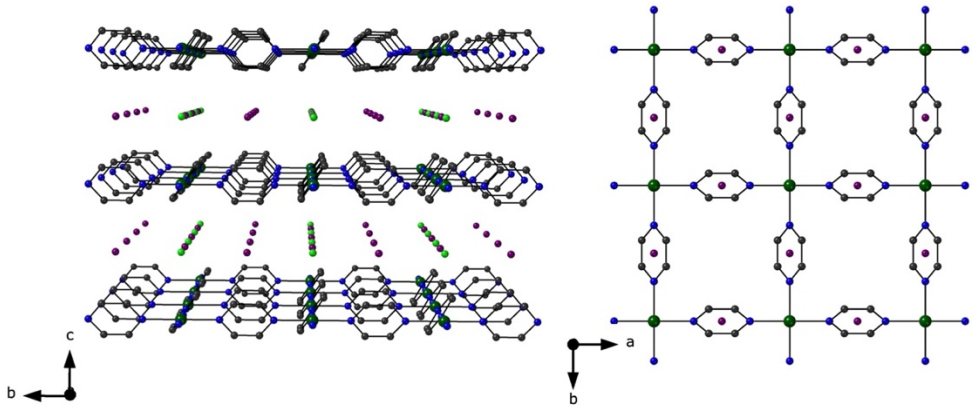
Magnets derived from inorganic materials (e.g., oxides, rare earth and intermetallic compounds) are key components of modern technological applications. Despite extensive success in a broad range of applications, these inorganic magnets suffer several drawbacks, such as energetically expensive fabrication, limited availability of certain constituent elements, high density, and poor scope for chemical tunability. A promising design strategy for next-generation magnets relies on the versatile coordination chemistry of abundant metal ions and inexpensive organic ligands. Following this approach, this lecture will present a general, simple and efficient synthesis of lightweight molecule-based magnets by post-synthetic reduction of pre-assembled coordination networks, $Cr(pyrazine)_2X_2$ (X = Cl or methylsulfonate) incorporating chromium metal ions (in +2 or +3 oxidation states) and pyrazine ligands [1,2]. The resulting metal-organic ferrimagnets feature critical temperatures up to 515 K, and unprecedented 7500-Oersted room-temperature coercivity (see figure below illustrating the structure of $Li_{0.7}[Cr(pyz)_2]Cl_{0.7}$) [3].



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