Structure and Properties of Aminoacid Adducts with 3d Metals

Leonore Wiehl[a*], Jürgen Schreuer[a], Eiken Haussühl[a], Katarina Removic-Langer[b], [a]*Institut für Mineralogie / Kristallographie and* [b]*Physikalisches Institut, Universität Frankfurt am Main, Germany.*
e-mail: L.wiehl@kristall.uni-frankfurt.de

Compounds with low-dimensional magnetic interactions can be designed by combining spin bearing metals with organic molecules. The metal ions are connected e.g. to amino groups or carboxylate groups of the organic ligand and two different metal ions may be bridged via the organic molecule, thus allowing for an electron transfer between the metals. Depending on size and geometry of the organic molecules and the amount of metal salt, many different arrangements are realized, e.g. dimers, trimers, chains [1] or even 2-dimensional sheets [2]. The different metal-metal distances and the chemical surroundings characterize the type and strength of magnetic interaction.

In adducts with betaine the carboxylate group can bridge two different metal ions. With aminoacids like histidine or glycine, the nitrogen atoms of the amino groups present additional bridging options.

Crystals of betaine and aminoacid adducts with MeX_2 (Me = Cu, Mn; X = Cl, Br) were grown from aqueous solution. The crystal structures will be presented together with magnetic susceptibilities, showing low-dimensional interactions and/or antiferromagnetic ordering at low temperature.

[1] Schreuer J., Haussühl S., Z. Krist., 1993, **205,** 313. [2] Lu J.Y., Lawandy M.A., Li J., Inorg. Chem., 1999, **38**, 2695.

Keywords: structure determination, betaine , magnetic ordering