Poster Presentation

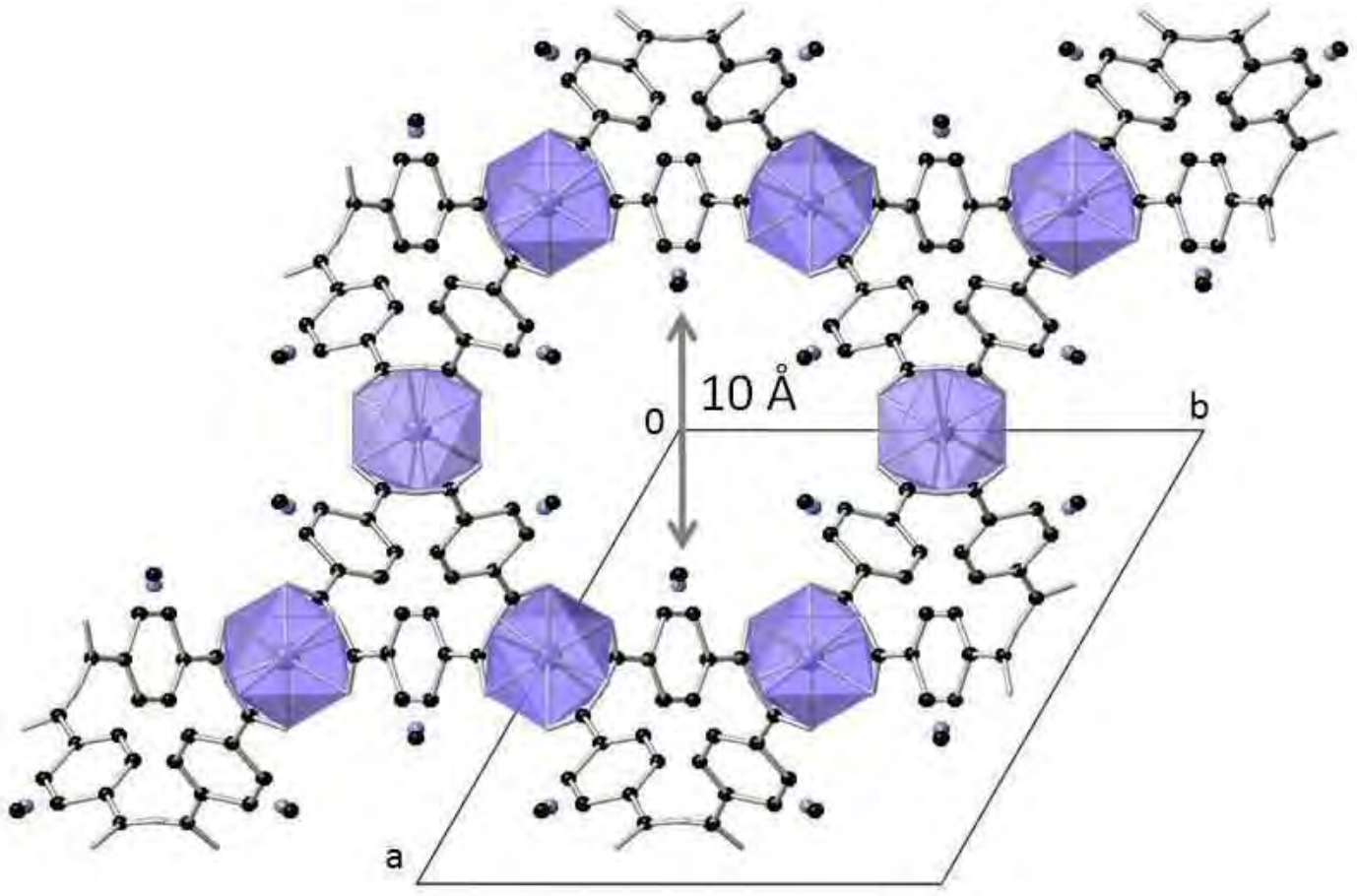
MS75.P03

Synthesis of MOFs from Zn,Cd,Ni-4-carboxyphenylboronic acid with DMF solvent

L. Dimowa[1], R. Nikolova[1], V. Dyulgerov[1], V. Kostov-Kytin[1], B. Shivachev[1]
[1]*Acad. Georgi Bonchev Str., Sofia, Bulgaria*

Synthesis and characterization of porous metal organic frameworks (MOFs) has prompted considerable interest because of the possibility to design the pore size and physical/chemical properties by suitable selection of the organic linkers (ligands). In this work, we have chosen a classical solvothermal synthesis strategy involving 4-carboxyphenylboronic acid, a molecule that is analogic to the terephthalic acid, Zn- Cd- Ni-OAc metal salts and DMF as solvent. It is known that during solvothermal synthesis DMF decomposes to dimethylamine which is easily incorporated in MOF's [1], [2]. The obtained MOFs are characterized by single-crystal X-ray diffraction, X-ray powder diffraction, TG analyses, IR spectroscopy and BET analyses. Preliminary X-ray single crystal diffraction results showed that a new type of structure may be produced in function of the temperature. The Cd- structure crystalizes in the hexagonal Space group P6222, with respective parameters of a = 14.4113(12), c = 13.0416(7) Å (Fig. 1). The cadmium ion is tetra coordinated by the oxygens of the B(OH)2 and COO- moieties. The 4-carboxyphenylboronic acid is disorder and attempts to lower the symmetry to model the disorder resulted in unstable refinement. In the studied systems in addition to the reported new compound isotypical structures to MOF-5 containing 4-carboxyphenylboronic acid instead of 1,4-benzenedicarboxylate were also obtained.

[1] *J. He, Y. Zhang, Q. Pan, J. Yu, H. Ding, R. Xu, Microporous and Mesoporous Materials 2006, 90, 145-152.,* ***[2]*** *H.F. Clausena, R.D. Poulsen, A.D. Bond, CONGRESO 2011.indb 316 20/07/2011 11:53:12Poster Sessions*



Keywords: MOF