# MS30-P8 Three dimensional Zinc(II) and Cadmium(II)-Metal Organic Frameworks (MOFs) based on 3,3',5,5'-Azobenzenetetracarboxylate and bis(imidazole) ligands

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The design and synthesis of coordination polymers have attracted attention due to their potential applications in the fields such as gas adsorption/separation, catalysis, conductivity, luminescence, magnetism and fascinating topologies [1]. Organic linkers and metal clusters containing secondary building units (SBUs) are very important to obtain three dimensional (3D) coordination polymers with the desired structures [2]. In this study, two novel coordination polymers, namely $\{[Zn_2(abtc)(1,4\text{-betib})]\cdot DMF\}_n$ (**1**) and $\{[Cd_2(abtc)(1,4\text{-betix})]\cdot DMF\}_n$ (**2**) ($H_4$abtc=3,3',5,5'-azobenzenetetracarboxylic acid, 1,4-betib = 1,4-bis(2-ethylimidazole-1yl)butane and 1,4-betix = 1,4-bis(2-ethylimidazole-1ylmethyl)benzene) were synthesized and structurally characterized by elemental analysis, IR spectra, single crystal X-ray diffraction. Complexes **1** and **2** were synthesized by the solvothermal methods at 100 $^oC$ in the presence of $HNO_3$. Single crystal X-ray diffraction of analyses reveal that **1** and **2** crystallize in the monoclinic and orthorhombic systems with the space groups C2/c, $P2_12_12_1$, respectively. The crystal structures of **1** and **2** with the atom labeling are shown in Fig. 1. As seen in Fig 1, the Zn(II) and Cd(II) ions are five coordinated with a distorted square pyramidal geometry by four oxygen atoms from four different abtc ligands and one nitrogen atom from bis(imidazole) ligands. Each abtc ligand acts as an octadentate ligand, 3,3'-carboxyl and 5,5'-carboxyl groups display bis(monodentate) bridging modes to connect to eight metal centers. Topological analysis revealed that both complexes are 3,6 connected sqc5381 net. Thermal and photoluminescence properties of the complexes were investigated in detail.

**Acknowledgements**

This work has been supported by The Scientific and Technological Research Council of Turkey (TUBITAK, project no: 113Z313).

**References**

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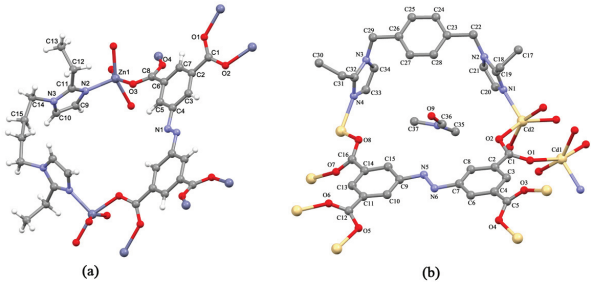

**Figure 1.** The crystal structures of 1 (a) and 2 (b) with the atom labeling

**Keywords:** Coordination polymers, azobenzenetetracarboxylate, bis(imidazole) ligands