

## Poster Presentation

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### *Calix[4]arene-Based MOFs Controlled by Length of Alkyldiammonium Guests*

K. Park<sup>1</sup>, E. Lee<sup>1</sup>, H. Ju<sup>1</sup>, S. Moon<sup>2</sup>, S. Lee<sup>1</sup>

<sup>1</sup>Gyeongsang National University, Department of Chemistry, Jinju, South Korea, <sup>2</sup>Kyungnam College of Information and Technology, Department of Food and Nutrition, Busan, South Korea

Our interest in the development of MOFs with the cavities controlled by guest species has led us to investigate the MOFs based on calix[4]arene derivatives, in which metal ions link the calix unit to give the networks with the cavities accommodating several guest species, because the calix[4]arene-based MOFs contain porosity associated with both the ligand itself and the structural framework. In the present work, we employed a low rim-functionalized calix[4]arene tetraacetic acid (H<sub>4</sub>CTA) with 1,3-alternative conformation as a multidentate building block and alkyldiamines as the guest molecules. In the solvothermal reaction of H<sub>4</sub>CTA and Zn(II) ion in the presence of alkyldiamines, two types of new MOFs based on calix[4]arene tetraacetate (CTA<sup>4-</sup>) depending on the lengths of  $\alpha,\omega$ -alkyldiammonium guests have been synthesized by including suitable alkyldiammonium guests. Their single-crystal X-ray diffraction analyses reveal that the short alkyldiammonium guests such as ethyldiammonium, propyldiammonium, and butyldiammonium lead to form two-dimensional framework with the cavity consisting of two CTA<sup>4-</sup> and four Zn(II) ions whereas the alkyldiammonium guests such as heptyldiammonium, octyldiammonium, nonyldiammonium, and decyldiammonium give rise to generate three-dimensional network with the cavity surrounded by six CTA<sup>4-</sup> and four Zn(II) ions. The alkyldiammonium guests in both MOFs are well accommodated by each cavity via a variety of supramolecular interactions including electrostatic interactions, hydrogen bonds and van der Waals interactions. We will present and discuss a study on the syntheses and characterization of two new MOFs based on calix[4]arene derivative.

**Keywords:** Host-Guest Interactions, Metal-Organic Framework, Calix[4]arene