

shows exceptional thermal stability up to 200°C whereas **2** which is fully dehydrated at 100°C, begins to collapse after 110°C.

[1] Yaghi O., Li Q., *MRS Bulletin* 2009, 34, 682. [2] Naik A. D., Dürst M. M., Léonard A., Tinant B., Marchand-Brynaert, Su B. L., Garcia Y., *Cryst. Growth Des.* 2010, 10.1021/cg901473. [3] Naik A. D., Marchand-Brynaert J., Garcia Y., *Synthesis* 2008, 149.

Keywords: MOF, crystal engineering, supramolecular chemistry

FA4-MS31-P17

Zn₂(O₂CCF₃)₄ and Zn₇O₂(O₂CCF₃)₁₀ – Syntheses and Crystal Structures. Nina van Gellecom^a, Georgi Genchev^a, Walter Frank^a, ^a*Institut für Anorganische und Strukturchemie II, Heinrich-Heine Universität Düsseldorf, Germany*
E-mail: wfrank@uni-duesseldorf.de

The first examples of zinc trifluoroacetates were reported in 1939 by F. Swarts [1]. These salts were found to be suitable precursors for the preparation of ZnO:F, which is of interest for the semiconductor research [2]. So far, only micro-crystalline samples or solvates of zinc trifluoroacetates have been described. Here we report on the syntheses and the crystal structures of the parent Zn₂(O₂CCF₃)₄ (**1**) and of Zn₇O₂(O₂CCF₃)₁₀ (**2**). Single-crystals of **1** have been obtained by the thermolysis of In(O₂CCF₃)₃ in the presence of elemental zinc at 240 °C under static vacuum. **1** crystallizes in the monoclinic space group *P*2₁/*c* with lattice parameters of *a* = 11.558(2) Å, *b* = 12.561(3) Å, *c* = 16.602(5) Å, and β = 134.121(17) ° with *Z* = 4. The structure is composed of two crystallographically independent Zn atoms that are linked by three trifluoroacetate groups. These fragments are connected by a further trifluoroacetate anion to form chains along [010]. Single-crystals of **2** have been prepared by the thermolysis of Ce(O₂CCF₃)₃ in the presence of zinc powder under reduced pressure at 320 °C. **2** crystallizes in the triclinic space group *P*1̄ with lattice parameters of *a* = 10.754(3) Å, *b* = 13.543(5) Å, *c* = 17.634(5) Å, α = 68.323(5) °, β = 89.772(5) ° and γ = 66.634(4) ° and with *Z* = 2. In the crystal of **2** the Zn₇O₂ fragments, which are composed of two edge-sharing Zn₄O tetrahedrons, are coordinated by ten trifluoroacetate groups. These fragments are linked by a bridging trifluoroacetate group to form chains along [001].

[1] Swarts F., *Bull. Soc. Chim. Belg.*, 1939, 48, 176. [2] Klingshirn C., *ChemPhysChem*, 2007, 8, 782.

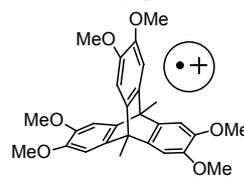
Keywords: zinc compounds, single-crystal X-ray diffraction, thermal behaviour

FA4-MS31-P18

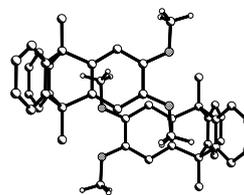
Novel 2D Assembly of Triptycene Cation Radicals vs. Traditional 1D Motifs Sergey V. Lindeman, Khushabu Thakur, Rajendra Rathore *Department of Chemistry, Marquette University, Wisconsin, USA*
E-mail: sergey.lindeman@mu.edu

A series of triptycene derivatives with varying number of *o*-dimethoxy substituents along with their corresponding cation

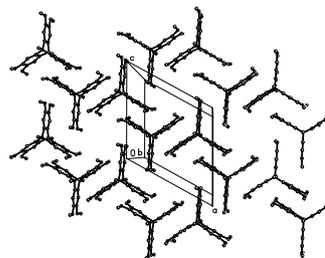
radical salts has been synthesized. The methoxy-substituted benzene rings possess a lower oxidation potential whereas the lengths of their C_{Ar}-O bonds provide a very sensitive indicator of the positive charge associated with the corresponding arene ring (i.e. 5.3 pm bond contraction per unit charge). The triptycene molecules were designed as a 3-



dimensional π-delocalized alternative to traditional planar 2-dimensional ion-radical substrates. Using highly precise low-temperature (100 K) X-ray structural data, the intra-molecular electronic interaction/delocalization was identified both in the neutral molecules and in the corresponding cation radicals. Specifically, C_{Ar}-O bonds in the neutral triptycenes are progressively elongated by up to 1.0 pm with increasing electron donicity of the molecules whereas C_{Ar}-O bonds in the corresponding cation radicals are additionally shortened by 2.0 pm (per unit charge) for interacting dimethoxy-substituted benzene rings. Importantly, both the neutral molecules and their cation-radical salts have a very uniform/conserved association mode of the dimethoxy-substituted arene rings in



crystals. They form close anti-parallel couples that are strengthened by multiple C-H...π hydrogen bonds and dipole-dipole interactions. These forces are further strengthened in the crystals of the cation radicals being assisted by favorable π-π interactions. The regular association of triptycene rings produces 2-dimensional layers with continuous electronic π-π delocalization throughout the plane of the layers via combination of intra- and inter-molecular charge resonance. This packing mode is principally different from the traditional



1-dimensional stacking of the planar aromatic ion radicals and hence opens new avenues in supramolecular design of the next-generation electronic materials for photovoltaic applications.

Keywords: supramolecular self-assembly, cation radical salts, charge resonance

FA4-MS31-P19

Synthetic Polymers in Biological Environment. Jindřich Hašek, Jan Dohnálek, Tereza Skálová, Jarmila Dušková, Andrea Štěpánková, Petr Kolenko *Institute of Macromolecular Chemistry, Academy of Science, 16206 Praha 6, Czech Republic*
E-mail: hasek@imc.cas.cz

Many practical applications where synthetic polymers are in a direct contact with bio-macromolecules are known. Positive and also some negative consequences of polymer activity in