

# Carboxylate Linked Dimeric and Polymeric Coordination Compounds



L. Sturm, C. R. Göb, I. M. Oppel

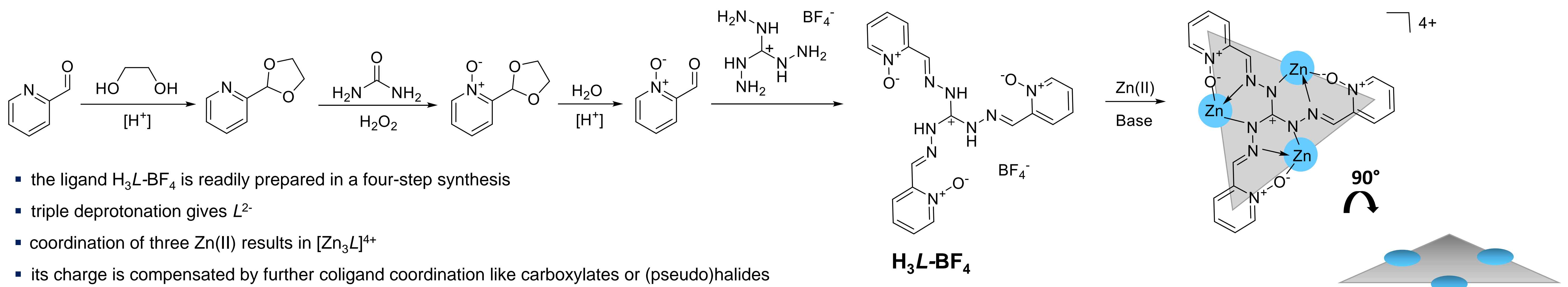
Institute of Inorganic Chemistry, RWTH Aachen University, Landoltweg 1, 52074 Aachen, Germany  
 lisa.sturm@ac.rwth-aachen.de, iris.oppel@ac.rwth-aachen.de

## Introduction

$C_3$ -symmetric triaminoguanidinium based ligands are able to coordinate hard metal ions like Ti(IV) or Zr(IV) as well as soft metal ions like Cd(II) or Pd(II) in their *tris*-chelating binding pockets. A variety of different discrete supramolecular coordination cages such as tetrahedra, octahedra and trigonal bipyramids are accessible.<sup>[1]</sup> The modification of salicylic aldehyde into pyridine-*N*-oxide based ligands reduces the negative charge of the deprotonated species.<sup>[2]</sup>

Coordination of Zn(II) in the presence of carboxylates and pseudohalides like azide or thiocyanate gives cyclic coordination oligomers, which can function as supramolecular host molecules for fullerene  $C_{60/70}$  encapsulation.<sup>[2,3]</sup> The absence of (pseudo)halides leads to the formation of a series of different dimeric and polymeric structures depending on the carboxylate chain length. They are further discussed on this poster.

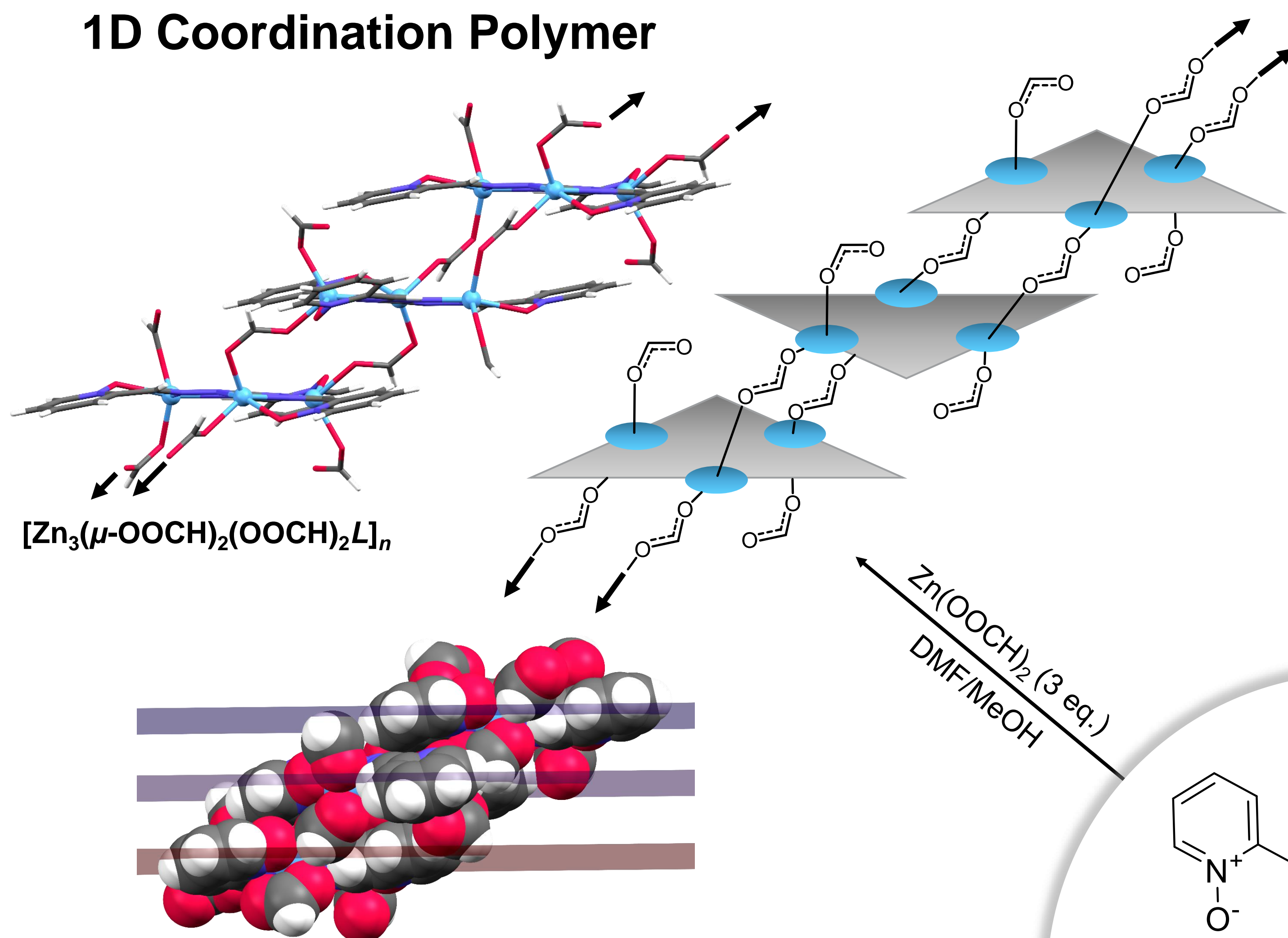
## Ligand Synthesis and Zn(II) Coordination



## Zn(II)-Zn(II) Linkage by Carboxylates

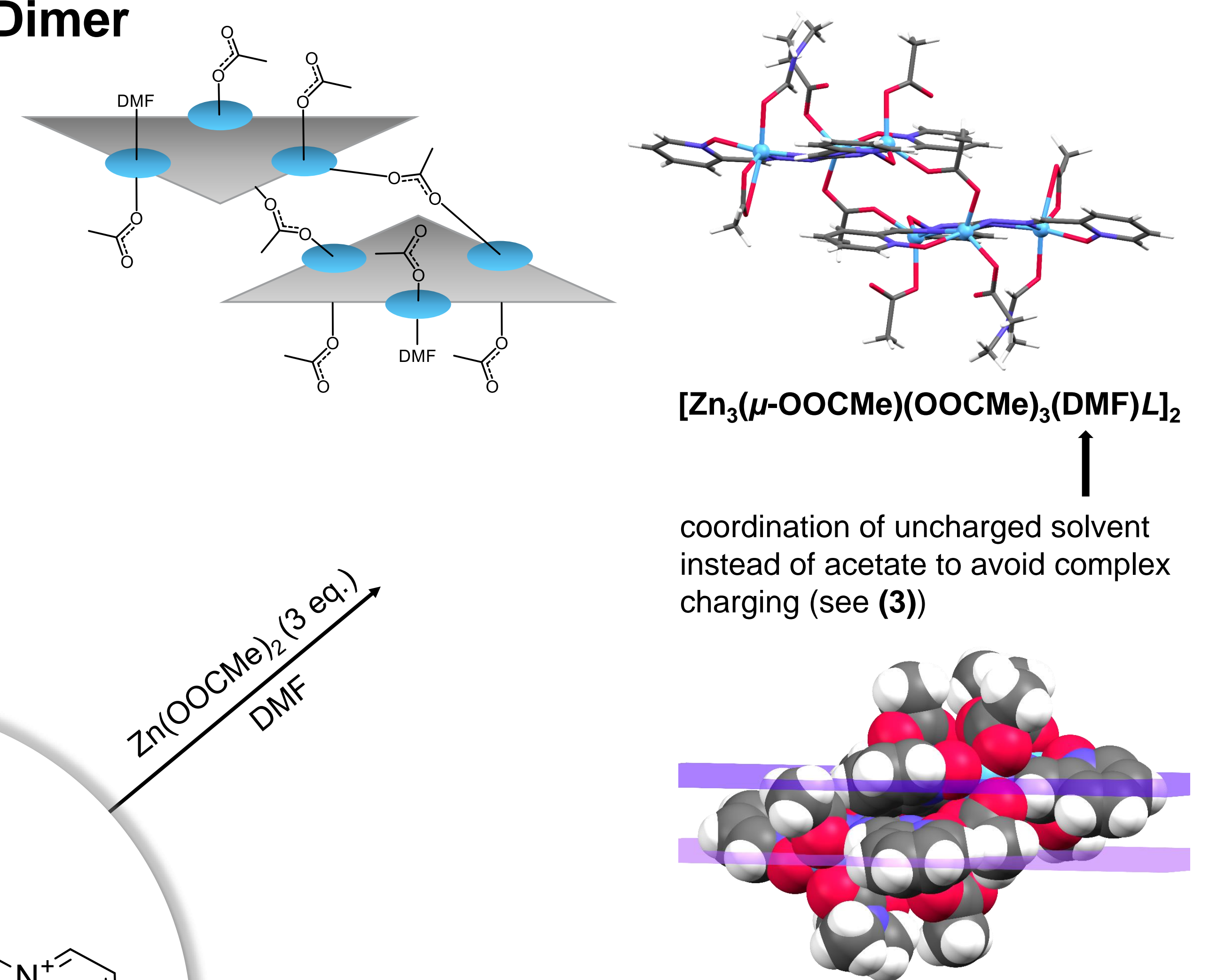
### (1) Formate Linked

#### 1D Coordination Polymer



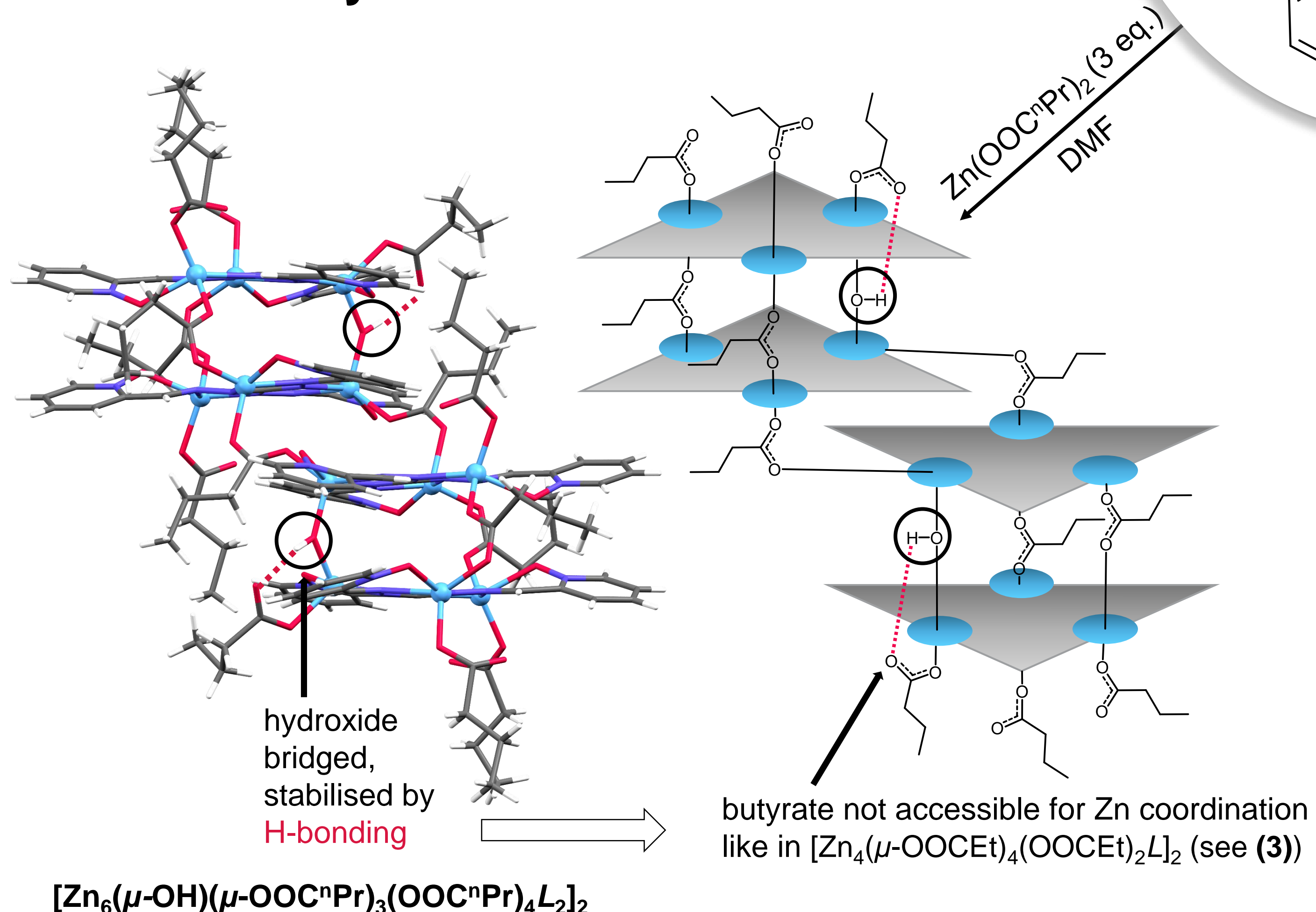
### (2) Acetate Linked

#### Dimer



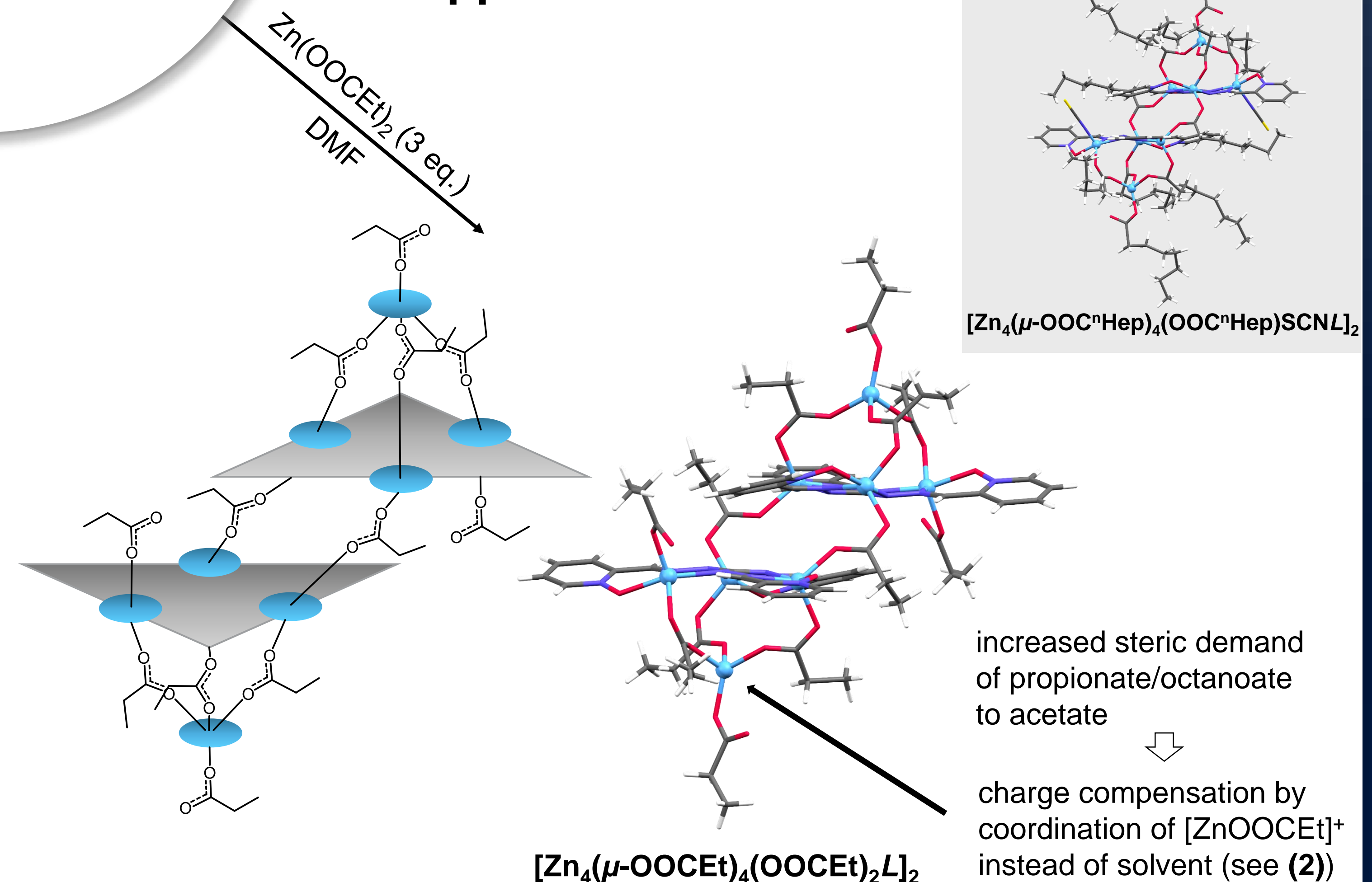
### (4) Butyrate Linked

#### Double Layered Dimer



### (3) Propionate Linked

#### Capped Dimer



## References

[1] C. von Eßén, C. R. Göb, I. M. Oppel, Triaminoguanidinium-Based Ligands in Supramolecular Chemistry in *Guanidines as Reagents and Catalysts II. Topics in Heterocyclic Chemistry* (eds. P. Selig), Springer, 2015, pp. 75-94.

[2] C. R. Göb, *Dissertation*, RWTH Aachen, 2018.

[3] C. R. Göb, L. Sturm, Y. Tobe, I. M. Oppel, manuscript submitted.