

**MS25-05** Crystallization and co-crystallization of Zn(II) heteroleptic complexes: modulation of properties. Alessandra Crispini,<sup>a</sup> Daniela Pucci,<sup>a</sup> Elisabeta I. Szerb,<sup>a</sup> Teresa F. Mastropietro,<sup>a</sup> Anna Maria Talarico,<sup>a</sup> Barbara Sanz,<sup>a</sup> Mauro Ghedini<sup>a</sup>, <sup>a</sup>*Department of Chemistry, University of Calabria, Italy*  
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Zinc is a non polluting element which can be conveniently used for practical purposes. In particular, with reference to the Zinc (II) coordination chemistry, it is noteworthy that many Zn(II) derivatives feature a blue luminescence, a property particularly exploited in order to propose and test their capabilities for application fields ranging from biochemistry to photonics [1]. The different applications require that the desired physical properties have to be displayed both in solution and in the solid state (e.g. fluorescent DNA binders with cytotoxic activity; photo-active materials in Organic Light Emitting Devices (OLED) [2]. In particular, investigations on photo-active molecular materials useful for applications in light emitting or photovoltaic devices are currently under way and in this context we have recently focused our studies on the relationship between crystal packing and emitting properties in the case of ionic Iridium (III) complexes [3]. Extending such an approach to Zn(II) heteroleptic derivatives and moving from single component to multi-components crystalline materials, we aim to present our work on the potential induction of otherwise non spontaneous interactions between low-weight Zn(II) complexes and organic molecules, to be used for modulating the structural and physical properties of the individual components. To this end, we have considered ionic and neutral Zn(II) complexes containing 2,2'-bipyridine substituted in 4,4' positions as aza-aromatic chelating ligands. In order to enhance the tendency of donor-acceptor species to form  $\pi \cdots \pi$  interactions, we introduced opportune H-bonded functionalities on the ligands, that, complementary to  $\pi \cdots \pi$  stacking interactions, can help the formation of co-crystals with modulated physical and chemical properties. Modification and enhancement of charge transfer absorption properties and solubilities of the new co-crystalline Zn(II) materials will be presented.

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**MS26-01** Porous Molecular Crystals based on Halogen and Hydrogen Bonds Kari Rissanen, *Department of Chemistry, Nanoscience Center, FIN-40014, University of Jyväskylä, Finland*,  
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An exciting research challenge in supramolecular chemistry is to design, synthesize, and characterize nano-sized architectures with applications in chemistry, materials science and biology. Predicting and designing non-covalently bound supramolecular complexes and assemblies is difficult because of the weakness of the interactions involved, thus the resulting superstructure is often a compromise between the geometrical constraints of the building blocks and the competing weak intermolecular interactions. Our research interest has been focused on the studies of weak non-covalent intermolecular, viz. supramolecular interactions as the driving force in solid state self-assembly and molecular recognition, especially by single crystal X-ray diffraction. The lecture will highlight some of our recent studies on systems showing concerted actions of halogen bonding[1-8] and hydrogen bonding resulting in porous molecular crystals[9-13].

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