
Internal Webinar

Synthesis of Heterometallic Complexes By Utilizing Compartmental Ligands, & Design of Phosphazene-based ligands for the synthesis of discrete and polymeric materials

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Last few decades we have seen profound interest for the synthesis of heterometallic complexes to study their interesting single molecule magnets.^{1,2} In this regard, we have designed various ligands that are mainly compartmental.^{1,2} In our current finding, we have synthesized a new ligand, that don't have any preference for binding the metals, but in situ reaction processes, the ligands undergo ring opening reaction, and provides three interesting coordination pockets. This ligand is utilized for synthesis of four heterometallic complexes, namely Ni_2Ln_2 [$\{L_2\{Ni(MeOH)(\mu-OAc)\}_2(\mu_3-MeO)_2Ln_2\}$; $Ln^{III} = Y^{III}, Gd^{III}, Tb^{III}, Dy^{III}$]. Ni_2Tb_2 possess interesting SMM properties. Not only this, we have designed a new phosphazene based ligands, that provides multi aldehydic systems, which is further utilized to synthesize various covalent organic polymers (COPs) by using various poly amines.³ This type of systems is very effective to synthesize various materials for the applications of numerous photochemical reactions, pollutant separation etc.

References:

1. J. Acharya, A. Swain, A. Chakraborty, P. Kumar, V. Kumar, J. Gonzalez, O.Cador, F.Pointillart, G. Rajaraman and V. Chandrasekhar, *Inorg. Chem.*, 2019, **58**, 10725–10735.
2. A. Chakraborty, J. Acharya, and Vadapalli Chandrasekhar, *ACS Omega* 2020, **5**, 9046–9054.
3. Chandrasekhar, V; Chakraborty, A. *Organophosphorus Chemistry*, Cambridge, U. K. 2020, **49**, 349–376.

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