

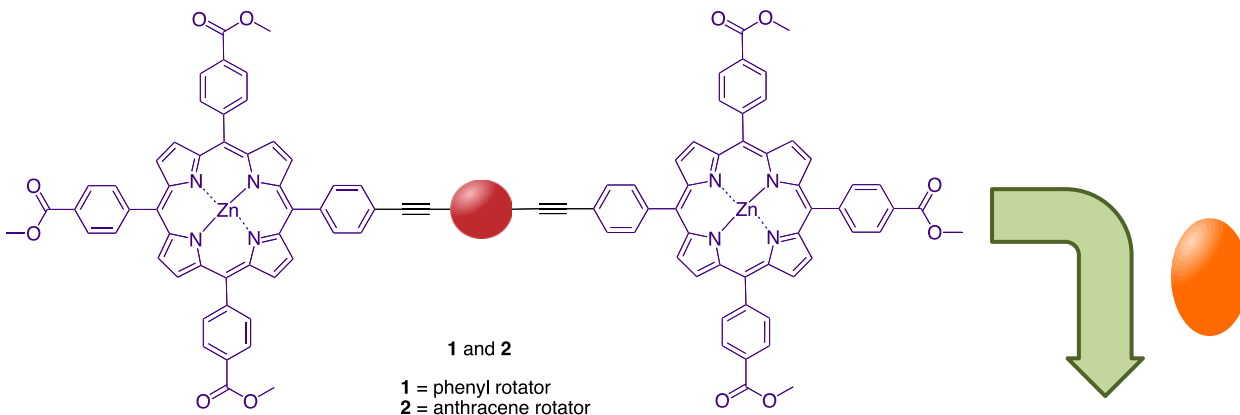
Synthesis of New Tunable Porous Coordination Materials to Demonstrate Geared Motion in Solid-State Materials

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Goal: We aim to create molecular gears in the solid-state by utilizing supramolecular properties of porphyrins to organize the rotator molecules.



Monomers **1** and **2** form the basis of the larger supramolecular structure. Coordination of bidentate pyridinyl ligands to the metal at the center of the porphyrins will allow the formation of sandwiches first in solution followed by extended organization in crystalline materials. **During the first year of this grant target molecules 1 and 2 were successfully synthesized.** Our next goal is to form the supramolecular structures and study rotational motions of the internal rotator molecule, shown here as a red ball.

