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Poster Presentation P52

SYNTHESIS OF POLYAZAMACROCYCLE MOLECULAR TWEEZERS AS A HOST FOR POLYOXOANIONS

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Host-guest chemistry concerns the design of receptor molecules that complement their targeted guests with respect to size, shape, and charge. One common area in host-guest chemistry involves the design of molecular tweezers, which are shown schematically in Figure 1.

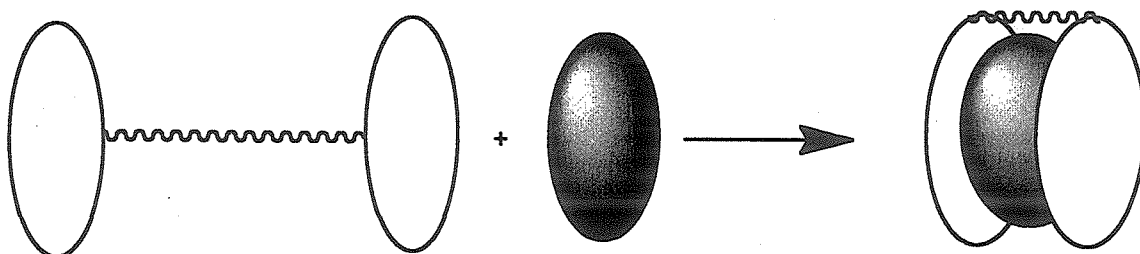


Figure 1. Schematic representation of molecular tweezers grasping a guest molecule.

Molecular tweezers have been developed to grasp a wide variety of neutral, cationic, and anionic guests. This study is directed toward the development of molecular tweezers for polyoxoanion guests. Because polyoxoanions are large, approximately spherical in shape, and negatively charged, they are complementary to the polyazamacrocyclic cations that will serve as pincers in the proposed molecular tweezers (Figure 2).

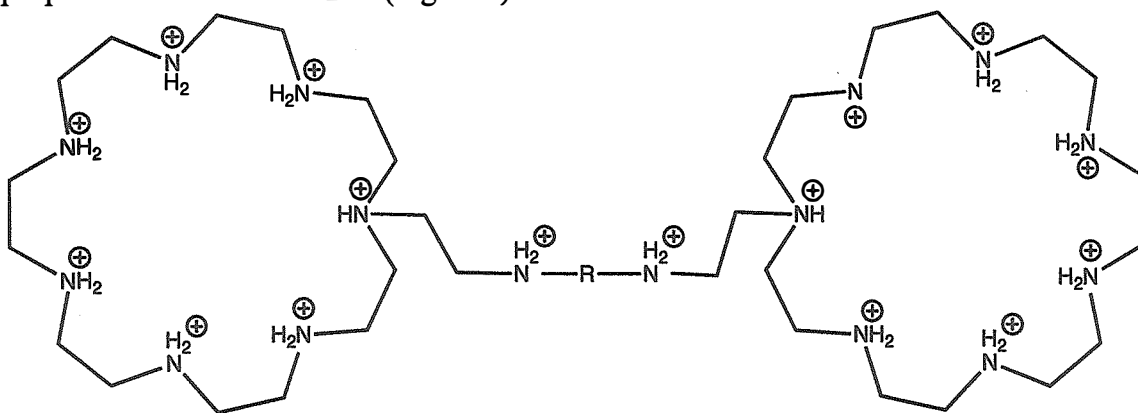


Figure 2. Proposed design of a molecular tweezers for polyoxoanion guests.

Toward these synthetic goals, the methods of Zhong, Mikkola, and Lönnberg are being employed in the multi-step synthesis of 1-ethylamino-1, 4, 7, 10, 13, 16, 19-heptaazacycloheicosane. Synthetic intermediates have been characterized by melting point and ^1H NMR.