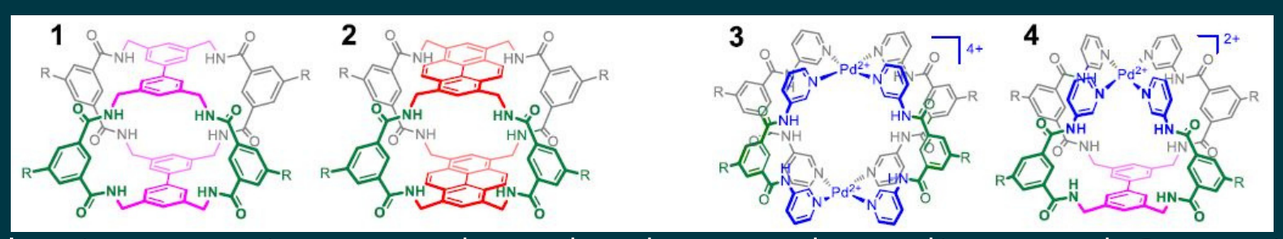
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY COLLOQUIUM

UTAH STATE UNIVERSITY

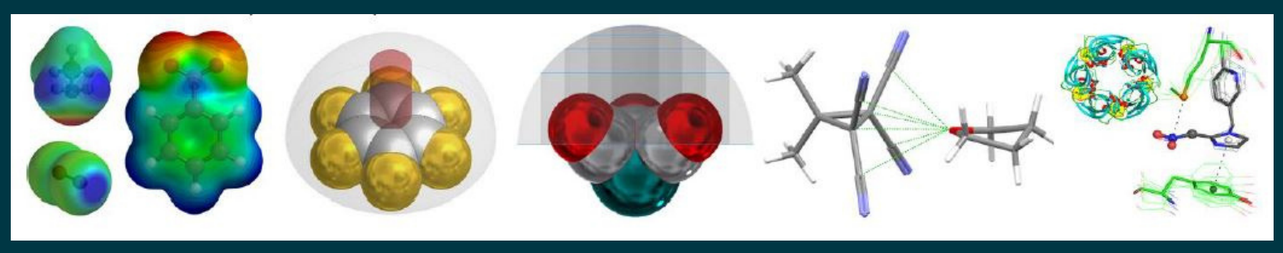
SEPT 22 2021

Old and new tricks to bind carbohydrates & unveiling unconventional intermolecular interactions

Carbohydrates are Nature's most abundant and versatile class of molecules and are involved in various biological processes. Selective recognition of a particular (oligo-)saccharide could thus be exploited as an analytical tool in the biomedical domain such as for diagnostic purposes. However, binding carbohydrates selectively is challenging due to their hydromimetic hydroxyl exterior and the subtle differences between structural isomers. The first part of this presentation will provide an overview of old (e.g. 1 and 2) and new (e.g. 3 and 4) tricks to confront this challenge.



Intermolecular interactions such as hydrogen bonding and CH-π interactions are key tools in the field of supramolecular chemistry, for example to enable carbohydrate recognition with macrocycles 1–4. A firm understanding of intermolecular interactions in their entirety is thus of interest to supramolecularchemists.Indeed,unconventional intermolecular interactions might be exploited in molecular designs of the 21st century and/or used in small-molecule drugs like protein inhibitors. The second part of this presentation will give a general overview of intermolecular interactions, and will present the directional character and (possible) utility of several unconventional interactions including 'tetrel-bonding'. The illustrations below are a teaser reflecting the contents of this part of the presentation.



4-5PM (MDT) | Virtual

https://usu-edu.zoom.us/j/89128547168?pwd=U0ZEUHN4Y0E2YUIxQ2ZRWXJERW9udz09

Zoom Meeting ID: 891 2854 7168

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