



IBS Seminar

Control of functional materials and supramolecular network dynamics at both the molecular and colloidal length scales

Oren A. Scherman, Prof. Ph.D.

- DATE & TIME: August 30th (Thursday) 11:00 AM
- PLACE: Research Bldg. 1, #112, POSTECH
- HOST: Prof. Kimoon Kim

Oren A. Scherman

*Melville Laboratory for Polymer Synthesis, Department of Chemistry,
University of Cambridge, Cambridge, UK*

Cucurbit[n]urils (CB[n]) are macrocyclic molecules made of glycoluril monomers linked by methylene bridges, where n is the number of glycoluril units. CB[n] are excellent host molecules as they form stable yet dynamic complexes with guest compounds in aqueous media with extremely high affinity. The larger homologue CB[8] is capable of simultaneously accommodating two guests to form either 1:1:1 heteroternary or 2:1 homoternary complexes with association constants up to 10^{15} M^{-2} through multiple non-covalent interactions.^[1] Our group has exploited CB[8]'s unique host-guest binding properties as a linking motif to prepare supramolecular polymers, micelles, hydrogels, microcapsules, hierarchical structured colloids and colloid/polymer hybrid materials.^[1-6] Interactions between CB[n] with gold colloids has also been an area of interest within our group, using CBs as molecular rulers to control the aggregation of Au NPs and subsequently bind and detect analyte molecules at room temperature.^{7,8} In this lecture I will highlight recent advances we have made in controlling dynamic functional materials, sensors and drug-delivery hydrogels based on CB-mediated host-guest interactions.

E-mail: oas23@cam.ac.uk



Center for Self-assembly & Complexity