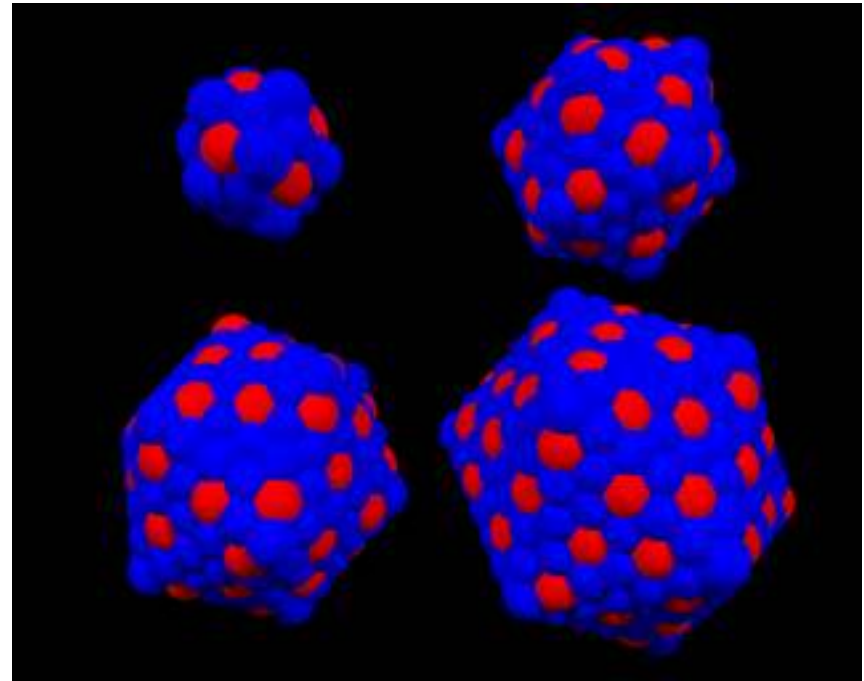


Faceting ionic shells into icosahedra via electrostatics

G. Vernizzi and M. Olvera de la Cruz PNAS, in press

Electrostatic effects can have dramatic effect at the nano-scale. Standard self-assembled vesicles have usually spherical shapes when they are made of not charged components. We find that when the components are charged instead, a novel electrostatics driven mechanism induce 1) a faceting of the shapes into icosahedra and 2) the icosahedral symmetry is broken since the charge distribution over the faces are not equivalent to one another facets. These shells appear in oppositely charged molecules co-assembled into membranes or adsorbed onto interfaces forming emulsions.



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