

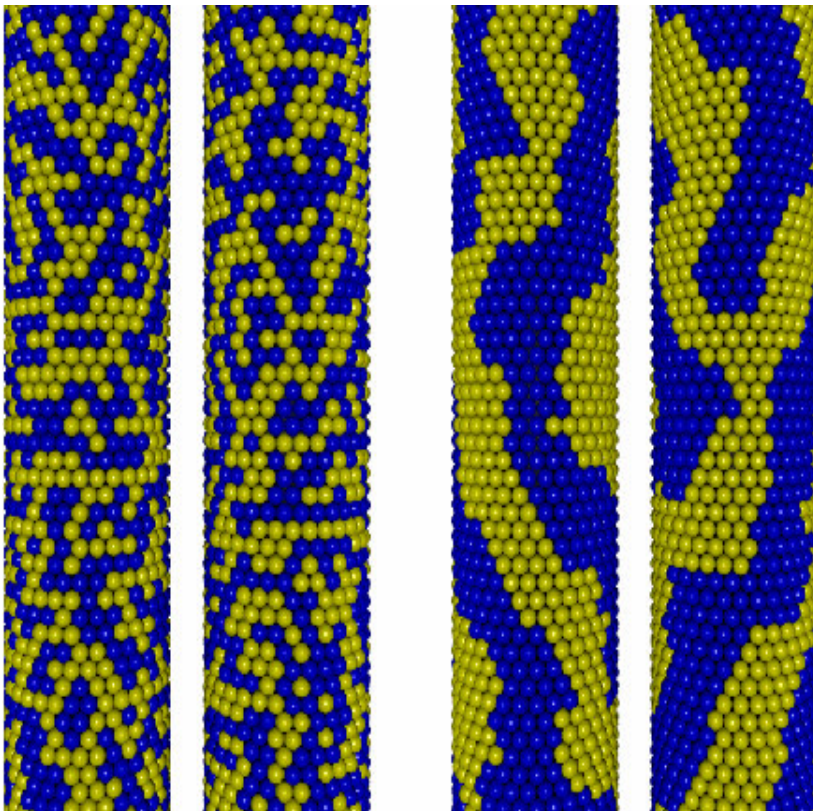
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Y. S. Velichko and M. Olvera de la Cruz “**Electrostatic attraction between cationic-anionic assemblies with surface compositional heterogeneities**” ” *J. Chem. Phys.* **124**, 214705-11 (2006).

## ELECTROSTATIC ATTRACTION BETWEEN CATIONIC-ANIONIC ASSEMBLIES WITH SURFACE COMPOSITIONAL HETEROGENEITIES



Fibers of charged molecules with surface heterogeneities interact via charge polarizability. The values of the net attraction among the co-assembled fibers with small heterogeneities, the pair on the left, has lower range and weaker strength than on fibers with larger heterogeneities, the right pair of cylinders.

Oppositely charged biomolecules can co-assembled into functional units, such as actin-binding protein complexes into cytoskeleton components or cationic-anionic co-assembled peptide amphiphiles into functional nanofibers, at appropriate ionic conditions. These cationic-anionic co-assemblies have surface charge heterogeneities that result from the delicate balance between electrostatics and packing constraints. We have studied interaction among assemblies with surface charge heterogeneities. Attractions among fibers appear as a result of correlations and polarization of surface charged domains

Our results reveal the importance of heterogeneities in cationic-anionic co-assemblies of complex molecules and suggest a promising strategy for fabrication of assemblies with predictable surface patterns of charge for developing functional biomolecular assemblies