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Self-assembly of Coordination Macroions — the Effect of Small Polymer Chains[1] HUI LI, TIANBO LIU, University of Akron, ALEX ZHUKHOVITSKIY, JEREMIAH JOHNSON, Massachusetts Institute of Technology — In the presence of small simple counterions, macroions with modest charge density could self-assemble into one-layer hollow spherical structures. The driving force to form this vesicle-like structure is considered as counter-ion mediated attractions. On the other hand, overall hydrophilic transition metal-organic macrocations, consisting of hydrophobic ligands (pyridine-based) and hydrophilic palladium (Pd) metal ions, can be used as nanosized macrocations. One of the positively charged coordination macroions, $Pd_{12}L_{24}$ (Pd = Pd (II), L = (1,3-di(pyridin-4-yl)benzene), is famous for its controllable and precise assembly structure and possible functional sites. By functionalizing the organic ligand with polymer ethylene glycol (PEG), the macroions could possess larger size thus lower charge density. Detecting their self-assembled structures will tell the difference of their solution behavior as well as the discrepancy of macroion clusters. In summary, the small non-charged PEG chains have been observed to reduce the surface charge density, and furthermore, significantly change the solution behavior.

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