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The morphology of small sized clusters in a system with the competing interactions YUN LIU, NIST Center for Neutron Research, Gaithersburg, MD, USA, NSTOR VALADEZ-PREZ, RAMON CASTAEDA-PRIEGO, Department of Physical Engineering, University of Guanajuato, Mexico — We have systematically investigated the morphological changes of clusters in a system with both a short-ranged attraction and long-ranged repulsion, which is ubiquitous for protein solutions. Interestingly, even though the delicate balance between the attraction and repulsion controls the fractal dimension of the large clusters, the overall sizes of small clusters seem to be sensitive only to the short-ranged attraction. This microscopic structure change is thus consistent with and provides a microscopic physical picture of the recently proposed general phase diagram where the attractive interaction controls the formation of clustered fluid in the one phase region.

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