

Review of: "Aggregation modeling of the influence of pH on the aggregation of variably charged nanoparticles"

Yi Zhang¹

¹ Central South University

Potential competing interests: The author(s) declared that no potential competing interests exist.

Particle aggregation is an important factor to be considered in the design of nanomaterials. Accurately controlling the dynamic aggregation process is extremely challenging due to the sensitivity of variable charge particles to pH.

Xiong's work proposed an optimized Cluster-Cluster Aggregation model to study the influence of pH on the aggregation of variably charged nanoparticles. The result showed the pH close the point of zero charge can increase the aggregation rate by reducing van der Waals force and electrostatic repulsion between particles. In addition, the initial particle concentration has a significant effect on the aggregation rate. It is worth mentioning that this paper compares the theoretical predictions proposed by Zhu and the experiment carried by Xu et al. It enriches the discussion content and further strengthen the reliability of the model results. However, the pH range is not clear enough for good dispersion of nanoparticles and the optimal initial concentration to avoid particle aggregation is also not mentioned.

In summary, this paper provides an advanced Cluster-Cluster Aggregation model which expected to become a new technical means for studying nanoparticle aggregation. The influence of pH on the aggregation process of nanoparticles also provides more references for the design of nanomaterials in the future.