Clay-Metal Hybrid Nanoparticles towards Plasmonic Materials

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Clay minerals are abundant natural materials arising in the presence of water, which are ubiquitous on earth and even on other planets such as Mars. In addition to their abundance and low cost, properties of clays such as high surface area, good ion-exchange capacity, and recyclability have led to their widespread use in industrial processes. The interlamellar space between layered silicate clays can also be used to host a variety of different organic and inorganic guest molecules or particles, which has been shown to be a promising strategy for the loading of drug and dye molecules. Following this line of interest, a method for the seedless synthesis of gold nanoparticles on the synthetic layered silicate clay Laponite was developed. This facile approach can be used to make metal-silicate nanoparticles with a variety of morphologies, with potential applications in plasmonic sensing, catalysis, and novel composite materials.
ONE page abstract format: including figures and references.

References

[1] E. H. Hill, N. Claes, S. Bals, L. M. Liz-Marzán, *Chem. Mater.* (**2016)** acs.chemmater.6b02186.

Figures

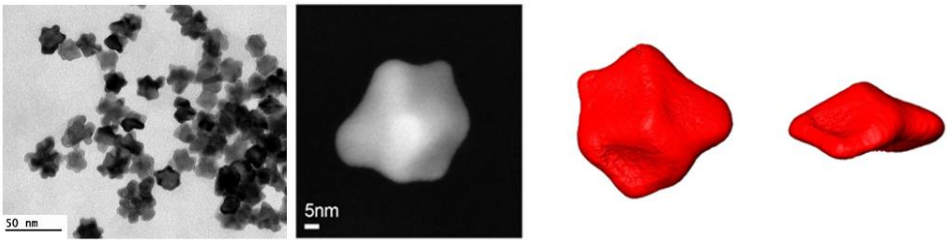

Figure 1: TEM images and 3-d reconstructions of laponite-gold nanoparticles