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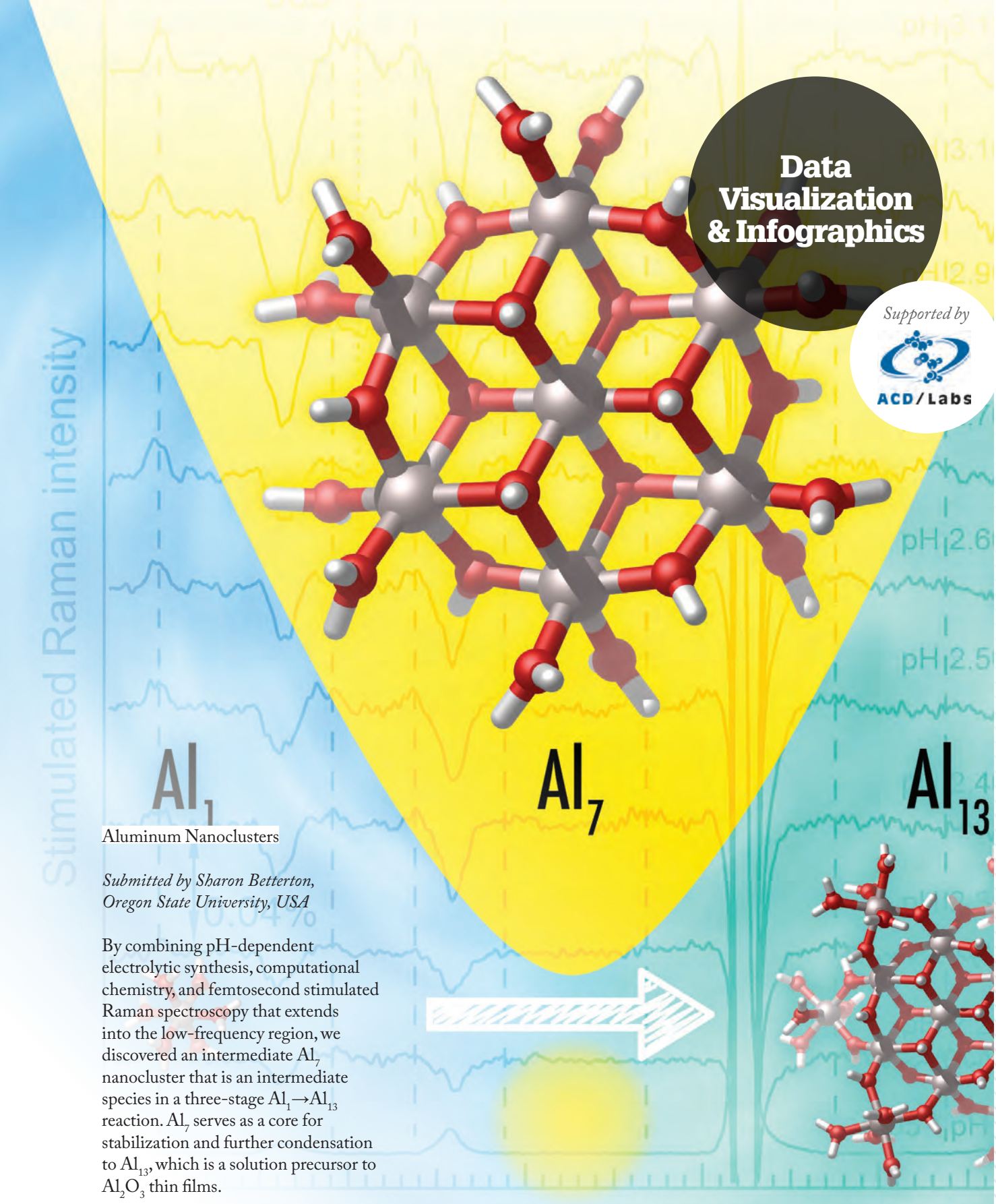

Al_1 Aluminum Nanoclusters

Submitted by Sharon Betterton, Oregon State University, USA

By combining pH-dependent electrolytic synthesis, computational chemistry, and femtosecond stimulated Raman spectroscopy that extends into the low-frequency region, we discovered an intermediate Al_7 nanocluster that is an intermediate species in a three-stage $Al_1 \rightarrow Al_{13}$ reaction. Al_7 serves as a core for stabilization and further condensation to Al_{13}, which is a solution precursor to Al_2O_3 thin films.

Image credit: Wei Wang, I-Ya Chang, Sharon Betterton, and Chong Fang