Dynamics in Small Metal Clusters

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The success of synthesizing monolayer protected clusters (MPCs) in the condensed phase has allowed scientists to probe their optical properties directly. Au MPCs have become the “gold” standard in nanocluster science due to the application of very rigorous chemical and structural characterization techniques. The use of ultrafast laser spectroscopy on MPCs in solution provides the benefit of directly studying the mechanisms of the dynamics of metal nanoclusters, and their non-linear optical properties. Based on the use of nonlinear and time-resolved spectroscopic techniques it is clear that monolayer protected metal clusters have unique physical and optical properties which are different than their larger metal particle counterparts. In this presentation the basic optical properties of metal clusters will be presented. Both linear and nonlinear optical measurements as well as steady state and time-resolved investigations of metal clusters will be presented. Applications of these clusters utilizing nonlinear optical methods will also be discussed.

Representative References

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(7) Ho-Wu, R., Sun, K., Goodson, T., J. Phys. Chem. C., 2018, DOI: 10.1021/acs.jpcc.7b11480