

Martedì **12 aprile 2022** alle ore **15:00** presso l'aula F

il **Dr. Benjamin J. Lear**

Department of Chemistry, The Pennsylvania State University,  
Pennsylvania, USA

terrà il seminario dal titolo:

## **Ligands control the electronic structure of small metallic nanoparticles**

**Abstract:** Metallic colloids have become a mainstay of modern science and technology, where they are often valued for their unique electronic properties---a fact that motivates a desire to rationally tune these properties. The majority of past efforts focused on controlling the size and shape of the metallic core---a focus that has been quite successful. However, colloidal systems also bear ligands at the surface, which provide colloidal stability. Over 100 years of molecular inorganic chemistry has demonstrated that ligands are a powerful means of controlling the electronic properties of single metal atoms and suggests that the ligands used to provide colloidal stability might also be leveraged to control the electronic properties of the nanoparticles. In this talk, I will show this is the case, demonstrating magnetism-based approaches to measuring the electronic structure of colloidal metallic systems and establishing the importance of the metal-ligand bond in controlling the electronic structure of the particles. In addition, it will be shown this approach offers a different kind of control over metallic nanoparticles, as compared to changes in size and shape.

*La presenza della S. V. sarà molto gradita*

*Flavio Maran*

**Il Direttore del Dipartimento**  
*Michele Maggini*