

Los Alamos Computational Condensed Matter Summer School 2026

– Closing the Loop Between Theory and Experiment



Overview

This two-week summer school aims to expose students to modern and emerging theoretical and experimental techniques, as well as their application to problems in the physical sciences and engineering.

The school combines pedagogical lectures in theoretical and numerical techniques, extensive hands-on training using open-source codes, and in-depth tutorials on key experimental techniques to show how the methodologies learned in the classroom translate to real scientific problems.

This school is open to both theoretical and experimental science students who have completed at least one year of graduate work and are familiar with advanced quantum mechanics and statistical mechanics. Each student will have the opportunity to present their work to encourage in-depth discussion. Questions are encouraged, free time and hands-on sessions give ample time for students to interact with Faculty and with each other. This school will help train the next generation of researchers to use and develop these tools and methods in their own research programs.

Travel, room, and board will be provided.

Topics Covered

- Foundations of Density Functional Theory
- Electronic Structure and Predicting Properties from First Principles
- The Effect of Electronic Correlations and Many-Body Theory
- Numerical Approach to the Many-Body Problem
- Extensions Beyond DFT: GW, DMFT, and Gutzwiller
- Focused Tutorials in Modern Experimental Spectroscopies
- Material Informatics and ML/AI tools for Quantum Materials

Venue

Los Alamos National Laboratory
Los Alamos, New Mexico, USA

Dates

15 – 26 June 2026

Website

<http://laccmss.org/>

Full Schedule

<http://laccmss.org/schedule/>

Organizers

Christopher Lane
Theoretical Division, LANL

Roxanne Tutchton
Theoretical Division, LANL

Elizabeth Peterson
Theoretical Division, LANL

Ying Wai Li
Computing and Artificial Intelligence Division, LANL

Alessandro Mazza
Materials Science and Technology Division, LANL

Andrew Jones
Center for Integrated Nanotechnologies