

LANL As the senior laboratory in the DOE system, Los Alamos National Laboratory executes work in all DOE missions: national security, science, energy, and environmental management. Our contributions are part of what makes DOE a science, technology, and engineering powerhouse for the nation.

C-DIVISION With five groups and a staff of nearly 300, the Chemistry Division serves LANL missions with innovative chemical science and technology for energy research, threat identification and mitigation, weapons science, health, space research, and much more. Our capabilities are essential for energy security, civilian-sector R&D, and industrial partnering.

EXPERTISE

- ACTINIDE CHEMISTRY
- ISOTOPE SCIENCE
- SYNTHETIC & MECHANISTIC CHEMISTRY
- CHEMISTRY FOR MEASUREMENT &
- DETECTION SCIENCE
- CHEMISTRY OF MATERIALS
- DATA ANALYSIS & MODELING FOR CHEMICAL SCIENCES
- RADIOCHEMISTRY & NUCLEAR SCIENCE



C3LAB offers a collection of analytical chemistry and materials testing capabilities, compliant with Weapon Quality Policy NAP-401.1 to support Weapons Production and Supply Chain Assurance.

- REACTION ENGINEERING
- ANALYTICAL CHEMISTRY SERVICES
- PROCESS MATERIAL ANALYSES AND EVALUATIONS



Joseph Dumont, a postdoctoral fellow in C-CDE, receives the Clive Young Award for Early Career Outstanding Poster Presentation at the 2019 PATRAM Conference

OPPORTUNITY Chemistry Division gives opportunities across the employment spectrum, from student positions, to graduate and postdoctoral fellowships, to mid-career research positions. We also have active programs in industrial partnering.

Many of our postdoctoral fellows have joined the Laboratory as technical staff members. Others have gone on to academic, research, national laboratory, or industrial appointments.

Learn more about Chemistry Division

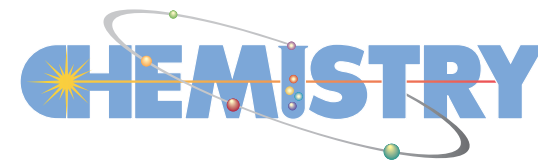
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C-CDE Group Office (505) 667-5740
Chemistry Division Office (505) 667-4457

COVER: Development of unique inks and filaments to 3D print radiation shields, flexible electronics, and antimicrobial materials

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CHEMICAL DIAGNOSTICS AND ENGINEERING



C-CDE COMBINES ENGINEERING DESIGN WITH CHEMICAL & MATERIALS ANALYSIS AND STATE-OF-THE-ART RESEARCH IN ANALYTICAL CHEMISTRY





C-CDE certifies cleaning fluids used in pit production using ion chromatography and other techniques

C-CDE combines state-of-the-art research in analytical chemistry, polymers, and material science with engineering applications for solving problems of national interest. The primary customer base is stockpile manufacturing and surveillance, applied and basic energy sciences, threat reduction, industrial partners, public health, and environmental stewardship. A key aspect in C-CDE is promoting close interaction between analytical chemistry, materials and polymer science, and R&D programs. We benefit from the latest technological advancements and our R&D efforts focus on solving difficult practical problems facing the USA.

CAPABILITIES

MATERIALS CHEMISTRY AND CHARACTERIZATION

Techniques such as ICP-MS/OES, XRF, LIBS, FTIR, XPS, SEM, Raman, etc. for projects involving chemical characterization, materials compatibility, and aging. Optimization of materials chemistry to increase lifetime and improve manufacturability and performance.

TRACE ELEMENTAL ANALYSIS

Materials characterization using nondestructive elemental analysis and spatially resolved elemental imaging with micro x-ray fluorescence. Inorganic metals analysis, isotope ratio measurements, and laser ablation of solids for ultra-low detection using ICP mass spectrometry and emission spectroscopy. Field portable LIBS, XRF, FTIR instrumentation for Global Security and Industrial applications.



ICP-MS/OES and laser ablation ICP techniques for quantification of trace elements for samples with complex matrices

CHEMICAL FORENSICS AND SIGNATURE SCIENCE

Research and development of new instrumentation and techniques for Weapons, Energy, Global Security and Commercial applications. Capabilities include Additive Manufacturing, Microfluidics, Standoff Detection, and Forensic Analytical.

APPLIED TECHNOLOGY & ENERGY

Footprint maintained in Pollution Prevention studies, Biofuel Production from non-standard feedstocks, Transparent Shielding Polymers, Wide Bandgap Semiconductors, and Tritium Fuel Cycle. New technologies for 1st responders and Homeland Security. Solar energy and Thermal transport, Chem/Bio Decon.



C-CDE is developing LIBS techniques for analysis of Pu to support LANL's pit production mission, U corrosion identification to support Surveillance, and actinide isotopics

GAS AND ORGANIC ANALYSIS

Gas and organic compound separation, identification and quantitative analysis by gas chromatography (GC) coupled with standard GC detectors or mass spectrometry (MS), or directly by a Residual Gas Analyzer (RGA). Mass spectrometry supported with either quadrupole or high resolution Time of Flight mass spectrometer for exact mass measurements. Capability to produce binary gas mixtures for programmatic missions.