Center for Isotope Cosmochemistry and Geochronology at NASA Johnson Space Center

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The Center for Isotope Cosmochemistry and Geochronology (CICG) at the NASA Johnson Space Center, led by Justin Simon, applies novel elemental and isotopic analytical techniques to understand solar system formation, from processes occurring during the earliest Solar Nebula, to the evolution of planetary bodies during planet formation and differentiation. CICG consists of an integrated suite of labs including dedicated spaces for specialized handling and preparation of meteorites and planetary return samples, metal-free clean chemistry, and mass spectrometry. In addition to a Thermo-Scientific Triton thermal ionization mass spectrometer (TIMS) for high precision isotopic analyses in processed samples, CICG houses two additional mass spectrometry instruments with added laser ablation capabilities for high spatial resolution *in-situ* measurements: (1) a Thermo-Scientific Element-XR inductively coupled mass spectrometer (ICP-MS) with a Teledyne Photon Machines Analyte Excite+ laser ablation system, and (2) a Nu Sapphire 1700 multi-collector ICP-MS, a large geometry instrument with a multi-pole collision cell for interference removal, with an Applied Spectra J200 tandem laser induced breakdown spectroscopy (LIBS) femto-second laser ablation system.

We detail the analytical capabilities of CICG in the context of current and future research projects related to the studies of protoplanetary disk evolution via early-formed Solar System solids, volatile abundances and distribution within the inner solar system, and geochemical and temporal investigations related to planet formation and differentiation. We also highlight opportunities through the relationship with the Center of the Advancement of Space Safety and Mission Assurance Research (CASSMAR) at the University of Texas at El Paso.

CICG is open to collaborations and participates in the NASA Facility for Astromaterials Research (NFAR) program, which accepts research proposals for access to the unique facility capabilities.