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Comparative study of carbonaceous meteoritic fragments by micro-Raman spectroscopy and SEM/EDS. ANALA DALL'ASN, JACOB MITTELSTAEDT, JIN-SUN KIM, BRANDON BAER, RAKA PAUL, Department of Physics and Astronomy, Minnesota State University-Mankato, JORDAN GERTON, BENJAMIN BROMLEY, Department of Physics and Astronomy, University of Utah, SCOTT KENYON, Smithsonian Astrophysical Observatory — Meteorites provide precious clues about the formation of planets in the solar system. In particular, carbonaceous chondritic meteorites, considered the most primitive surviving materials from the early Solar System, can contribute to understand how planetisimals (the precursors to planets, of 1-100 km in radius) formed from dust (micron-size grains). These relics are mainly composed of chondrules (micro/millimeter-sized inclusions) surrounded by a matrix of microparticles. Here we present a comparative study of the structure and composition of the chondrules and surrounding matrix of different carbonaceous chondritic meteorites using low- and high-resolution micro-Raman spectroscopy and SEM/EDS (Scanning Electron Microscopy/Energy Dispersive X-ray Spectroscopy). We examine how these properties vary in different regions of the chondrules and matrix, capturing details from micrometer to millimeter scales. We compare the structure and composition between different samples, looking for signatures of the physical processes that drove their formation.

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