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Working

## Allende HRTEM study

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### ABSTRACT

**SAMPLES.** We used a meteorite specimen of 297.8 g in weight, register number IG-A7, from the Colección Nacional de Meteoritas of the Instituto de Geología, Universidad Nacional Autónoma de México (UNAM), Mexico City (figure). For transmission electron microscopy (TEM), a ~ 4 cm long fragment of the large specimen were freshly fractured and cut by using a diamond knife in a clean room. Later, smaller clean fragments (~ 50 mg in total) were extracted from the interior, avoiding contamination from the fusion crust or surface areas. The resulting crude sample were powdered in an agate mortar and suspended in high-purity ethanol to achieve homogeneous dispersion without agglomerates. For HRTEM analysis, a 5µl pipette was add a portion of that suspension to a lacey carbon grid coated with formvar. Before being used, the TEM grid was carefully inspected in order to rule out any possible contamination.

**HRTEM.** High Resolution TEM imaging of chondrite samples was conducted using an Aberration Corrected Cold Field Emission Scanning Transmission Electron Microscope Jeol JEM-ARM200CF at the Centro de Nanociencias y Micro y Nanotecnologías, Instituto Politécnico Nacional, Mexico City. The TEM microscope is equipped with cold field emission gun, Cs-corrector, and high angle annular dark field (HAADF) detector and has ultra-high resolution of 0.72 Å. We utilized an electron beam spot with a condenser aperture of 60 nm at 200 kV for less than 30 seconds. Several locations on individual samples were analyzed. Fast Fourier Transform (FFT) analysis and image processing were applied using the freely available Digital Micrograph (GATAN) software attached at the microscope.

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