Near-field Infrared Spectroscopy as a Tool for Analysis of Chondritic Returned Samples

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Near-field Spectroscopy and Imaging

- Synchrotron-based IR **spectroscopy** and laser-based IR **imaging** at ~ 20 nm spatial scales.
- Data collection on **FIB** sections, **microtome** sections, and standard petrologic **thin sections**.
- Strong interaction between AFM tip and sample surface distorts strong phonon modes—spectral libraries needed.

Sample Images

- **ALH 77012**
  - H5 Ordinary Chondrite
- **ALH 83100**
  - CM2 Carbonaceous Chondrite

Spectral Data

- **ALH 77012**
  - Phyllosilicate
  - Carbonate
  - Pyroxene

- **ALH 83100**
  - Phyllosilicate
  - Carbonate
  - Pyroxene