

AFM observation of chondrite matrix

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In order to reveal the history of matrix of meteorites, atomic force microscopy (AFM) has successfully been applied to the matrix fine grains. Since the surface of these crystals exhibits growth or dissolution patterns at a molecule level, AFM is suitable for this purpose. However preparation of the surfaces for the observation was not easy and thus we have tried several methods to the Allende CV3 and L3 Plainview chondrites.

Since AFM, Nanoscope 3, Digital Instrument, has a nanometer spatial resolution, AFM usually applied to the surface of semiconductors or the study of growth mechanism of solution grown crystals. However, natural meteorites have not been regarded as suitable samples for AFM observation because of its very rough surface.

Both synthesized and natural cosmic dust particles have been observed by AFM so far. Varieties of surface patterns could be observed and the interpretation will be given during the poster session.