

Fairyfloss asteroids—a window into the early solar system

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Lucy Forman

Rocky asteroids were formed by collisions between giant, fairy floss-like dust clouds as our Solar System formed, according to planetary geologist Lucy Forman.

Working at Curtin University, Lucy used computer modelling to understand what happens when two fluffy clouds of space dust collide, calculating the resulting heat and pressure released between the [dust particles](#).

And she confirmed the theory with physical proof by studying thin sections of an ancient, rocky meteorite that had fallen to Earth under an electron microscope.

In the slices of meteorite, Lucy found direct evidence of the heat and pressure her modelling had predicted in the way grains in the rock had bent and aligned, just as matchsticks in a pile on the floor would align if squeezed together.

The meteorite that Lucy studied fell in 1969, and is part of two tonnes of space rock known as the Allende meteorite after the town in Mexico where it fell.

Lucy found two different types of grain in the meteorite rock—large, round, marble-like grains, seemingly untouched by the effects of heat and pressure, surrounded by a matrix of very small grains that had been deformed by the heat and pressure of ancient collisions.

The matrix of small grey grains precisely matched the predictions of the computer modelling, which suggested the heat and pressure of collisions within dust clouds would be concentrated on regions that initially had lots of space around them.

The research has recently been published in *Earth and Planetary Science Letters*.

More information: L.V. Forman et al. Hidden secrets of deformation: Impact-induced compaction within a CV chondrite, *Earth and Planetary Science Letters* (2016). [DOI: 10.1016/j.epsl.2016.07.050](https://doi.org/10.1016/j.epsl.2016.07.050)

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