

Development of Sampling Method of Cosmic Dust

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It is important to figure out the how planets were formed in the early solar system. Meteorites is serve as clues, but there are few meteorites that fall to the earth. In contrast, there is a greater amount of cosmic dust that fall to the earth than meteorites. Therefore, it is high probable the formation of the planets can be figured when researching cosmic dust.

A common way of sampling cosmic dust it is coating on a slide glass with adhesive (like Vaseline) and letting it stand overnight outside. By doing so, on each slide glass the matter from the Earth' s surface is mingled. In addition, the amount of cosmic dust can be as little as 1 piece per 1 slide glass, so it takes time to observe cosmic dust when viewing the sample with a microscope because most of matter in fact not cosmic dust and is just matter from the Earth' s surface. Thus, a sampling method of cosmic dust that reduces mixing matter from Earth' s surface was developed.

Firstly, this equipment (fig.1) was manufactured to prevent blending cosmic dust and matter from Earth' s surface. A plastic container was turn over and attached to plywood with tape, and an aluminum board was pasted on the side of the plastic container. The aluminum board prevented other matter from adhering to the slide glass. In the experiment, the height of the aluminum board was raised progressively to verify whether it can be used to prevent matter from Earth' s surface from adhering to the slide glass. The first measurement was taken without aluminum boards (i.e. This the baseline control for the 0 cm aluminum boards) remaining measurements are expressed as percentages. It was found that there was a 74% reduction in the amount of matter from the Earth' s surface when 30 aluminum boards were used. Thus, it became easy to collect cosmic dust.

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