

Review of: "Ballistic Motion of Dust Particles in the "Collecting the Big Muley Lunar Rock" Sequence of the Apollo XVI Footage"

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Potential competing interests: No potential competing interests to declare.

The authors consider photopictures made during the Apollo XVI mission and study the ballistic motion of dust particles presented on them. They manage to obtain information on dust particle size and mechanical behavior in the lunar environment. They conclude that the "the model with air resistance proves to be more effective than the linear one". The linear one assumes simple parabolic motion of the dust particle inherent typically in an atmosphereless cosmic body. However, when ballistic trajectories are considered, the motion of dust grains above the lunar surface can differ from the parabolic one. Indeed, the dust particle is charged due to different factors like the photoelectric effect by the solar radiation, interaction of the dust particle surface with electrons and ions of the solar wind, etc. (see, e.g., S. I. Popel, L. M. Zelenyi, A. P. Golub', and A. Yu. Dubinskii, Lunar Dust and Dusty Plasmas: Recent Developments, Advances, and Unsolved Problems, Planetary and Space Science 156 (2018), 71-84, doi: 10.1016/j.pss.2018.02.010). The charge of the dust particle is not the same at different points of its trajectory. This makes the trajectory different from the parabolic one. This effect is not taken into account by the authors.