

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 employed 2D and 3D photoanalytical methods and techniques to analyze the photos and films taken during the Apollo XVI mission. They specifically studied the motion of dust particles kicked up by the astronauts' footsteps. The analysis methods and techniques employed in this paper can also be used for future crewed lunar missions to analyze the effect of human activities on the motion of lunar dust particles.

However, I question the calculations related to air resistance. It is clear that the moon has an airless surface. The 'air resistance' above the lunar surface can be ignored. I suggest the authors use the electric force instead of the air drag force. The dust particles are kicked from the left foot, which is in the shadow of the astronaut, as shown in Figure C9. In the shadow regions, the electric potential is negative. The surface charge of the dust particles kicked from and traveling in the shadow region can be more simply calculated by their surface potentials and sizes, as $Q=4\pi\epsilon\phi r$. The lunar surface is exposed to sunlight, which has a positive potential and attracts the negatively charged dust particles.

Hence, I suggest this manuscript make a minor change regarding the calculation of air resistance.