

Pattern in ejecta curtain generated by the impact into granular targets of various sized particles

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We conducted impact experiments using targets composed of particles with size distributions and projectiles with a size larger than or comparable with the maximum size of particles in targets. The pattern and particle concentration in the ejecta curtain were investigated. The results show three types of ejecta curtain features: (i) filament pattern extending throughout the entire curtain and high concentration, (ii) filament pattern and low concentration, and (iii) mesh-like pattern with a structure on smaller scales than the entire curtain and low concentration. When the target consists of particles using a bimodal size distribution with size differences of more than one order of magnitude, the filament pattern appears, exhibiting case (i). If the target consists of particles with various sizes with size differences of more than one order of magnitude, the filament pattern appears, but the concentration decreases, appearing the features of case (ii). Case (iii) occurs when the target consists of particles with a single size or when the mass of particles with a certain size is dominant.

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