

Numerical modeling on concrete debris ricocheting off sand ground

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A numerical study on concrete debris ricocheting off sand ground is presented in this paper. The numerical package ANSYS LS-DYNA is used to model the whole process of the impact of concrete debris on sand ground. The numerical modeling is first calibrated with experimental results. A set of formulation is retrieved from the numerical results to predict the ricochet angle and the ricochet velocity in terms of the incident angle and the incident velocity. The debris size effect on the ricochet phenomenon is also studied. It is found that for the range of the debris size studied in this paper, the debris size only has very minor influence on the ricochet.

Keywords: Ricochet, Concrete debris, sand, debris size, LS-DYNA