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Simulation of Ejecta Production and Mixing Process of Sn Sample under shock loading PEI WANG, DAWEI CHEN, HAIQUAN SUN, DONGJUN MA, Institute of Applied Physics and Computational Mathematics, Beijing — Ejection may occur when a strong shock wave release at the free surface of metal material and the ejecta of high-speed particulate matter will be formed and further mixed with the surrounding gas. Ejecta production and its mixing process has been one of the most difficult problems in shock physics remain unresolved, and have many important engineering applications in the imploding compression science. The present paper will introduce a methodology for the theoretical modeling and numerical simulation of the complex ejection and mixing process. The ejecta production is decoupled with the particle mixing process, and the ejecta state can be achieved by the direct numerical simulation for the evolution of initial defect on the metal surface. Then the particle mixing process can be simulated and resolved by a two phase gas-particle model which uses the aforementioned ejecta state as the initial condition. A preliminary ejecta experiment of planar Sn metal Sample has validated the feasibility of the proposed methodology.

Hao Pan
Institute of Applied Physics and Computational Mathematics, Beijing

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