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Simulation texture development of polycrystalline aluminum under dynamic loading XIAOMIAN HU, HAO PAN, ZIHUI WU, National Key Laboratory of Computational Physics, Institute of Applied Physics and Computational Mathematics, Beijing — Effect of texture to dynamic response of polycrystalline metals under dynamic loading attracted much attention because of interesting phenomena and great challenges to experiment and simulation. This paper uses a crystal plasticity finite element method (CPFEM) with a dislocation based hardening law to model the texture development of polycrystalline aluminum under simple compression, uniaxial strain ramp loading and shock wave loading. Strain hardening under the three compression conditions is also compared. The simulation results show that the preferred orientation during of the polycrystalline aluminum under the three compression conditions has some different. It caused normalized stress-strain profiles of state of 1D stress and 1D strain are different when strain is over 5% and strain rate is same

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