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Meso-macro momentum exchange and steady-wave propagation YURY MESHCHERYAKOV, Institute for Problems in Mechanical Engineering RAS — Mechanism of meso-macro momentum exchange is incorporated into steady-wave shock solution grounded on the dislocation dynamics. As a test task, propagation of steady plastic front is considered and analytical solution for particle velocity is obtained. Experimental particle velocity profiles of Johnson and Barker for 6061-T6 aluminum alloy and D16 aluminum alloy are used for comparison with the theoretical profiles. Including the meso-macro momentum exchange into constitutive equation allows to fit experimental velocity profiles without increasing the initial dislocation density.

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