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Formation, Propagation, and Attenuation of Shocks Waves in Jammed Matter LEOPOLDO GOMEZ, Leiden University - Universidad Nacional del Sur - CONICET, VINCENZO VITELLI, Leiden University — We study the formation and propagation of fully non-linear waves in jammed granular media. Close to the jamming point, an arbitrary initial distortion of the media will induce the formation of non-linear finite amplitude waves. There are two regimes in the evolution of these waves. At early times non-linear interactions dominate the propagation, leading to a temporal evolution strongly dependent on the initial distortion. At long times the propagation is characterized by a new universal regime, dominated by hydrodynamical attenuation. Here the non-linear waves evolve in a self-similar fashion, characterized by a power law attenuation whose exponent is weakly dependent on the initial pressure of the system.

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