

Abstract Submitted
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Dashboard Road: The dynamics of granular ripples formed by rolling wheels NICOLAS TABERLET, ANNE-FLORENCE BITBOL, ENS Lyon, France, STEPHEN MORRIS, University of Toronto, JIM MCELWAIN, University of Cambridge — We report laboratory experiments on rippled granular surfaces formed under rolling wheels. Ripples appear above a critical speed and drift slowly in the driving direction. Ripples coarsen as they saturate, and exhibit ripple creation and destruction events. All of these effects are captured qualitatively by 2D soft particle simulations in which a disk rolls over smaller disks in a periodic box. The simulations show that compaction and segregation are inessential to the ripple phenomenon. We describe a simplified scaling model which gives some insight into the mechanism of the instability.

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