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Dune formation in pipe flow¹ MALIKA OURIEMI, University of California - Santa Barbara, PASCALE AUSSILLOUS, ELISABETH GUAZZELLI, Ecole Polytechnique Universitaire de Marseille — We present a phase diagram of the different dune patterns observed when a bed composed of spherical particles is submitted to a shearing flow in a pipe. A stability analysis is performed to predict the threshold for dune formation. The control parameter of the instability is the Reynolds number and the predicted wavelength at onset is of the order of the fluid thickness. This analysis accounts reasonably well for the experimental observations.

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