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Walkers in cavities BORIS FILOUX, MAXIME HUBERT, PETER SCHLAGHECK, NICOLAS VANDEWALLE, University of Lige, BELGIUM — When a droplet is placed onto a vertically vibrated bath, it can bounce without coalescing. Upon an increase of the forcing acceleration, the droplet is propelled by the wave it generates and becomes a walker with a well defined speed. Recently, some 2d confining systems for walking droplets have been developed: cylindrical cavity, harmonic potential or the use of Coriolis force. In addition, the interactions between two identical walkers have been studied in a 2d case. Nevertheless, no study focuses on 1d dynamics and their properties. In this work, we show it is possible to confine a walker in a quasi mono-dimensional geometry by using submerged cavities. We focus on the interactions between droplets. Then, we study the speed of a pair of walkers and show that the distance between the drops affects the group speed. The closer the drops are, the faster they move. We also propose a numerical model to characterize the distance quantization, and the evolution of the speed of a string of droplets. We investigate the case of a string of droplets, and discuss the influence of the number of droplets and the distance between them on the string speed. We show that the drops share a coherent wave. Finally, we discuss the influence of the memory parameter.

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