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Discrete Dynamical Models of Walking Droplets AMINUR RAHMAN, Texas Tech Univ — In recent years discrete planar dynamical models of walking droplets (walkers) on a billiards table (Shirokoff, Chaos 2013) and walking in a straight-line confined geometry (Gilet, PRE 2014) have been developed. Gilet's model was then analyzed via dynamical systems theory (Rahman-Blackmore, C,S& F 2016). From the analysis it was shown that while Gilet's walker is confined under the threshold for chaos, it does escape the boundary once the system becomes chaotic. We modify the model to trap the walker in an annulur domain. This allows for connections between the dynamics, statistics, and experimental works (Filoux et al., PRE 2015). From this connection we derive a kicked rotator-like model for a walker in an annulus. We endeavor to manipulate the dynamics of the model to produce statistics similar to that of experiments.

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