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Statistical properties of an elastic rod dynamically confined in 2D FREDERIC LECHENAULT, MOKHTAR ADDA-BEDIA, LPS, Ecole Normale Supérieure — We investigate the statistical properties and stationary states of an elastic rod dynamically confined in a Hele-Shaw cell. As the confined length is increased, we observe a transition from an ordered spiral-like pattern to a disordered, rearranging pack of loops. In the disordered phase, we decipher the trajectories of the rod from its geometric configurations, and report correlation between curvilinear and spatial energy distributions. Moreover, we establish the relationship between the number of loops and the confined length, yielding insights into the loop occupation number and the overall rigidity of the system.

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