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Dynamics and Jamming for Run-and-Tumble Swimmers in the Presence of Quenched Disorder CYNTHIA OLSON REICHHARDT, CHARLES REICHHARDT, Los Alamos National Laboratory — We consider run-and-tumble swimmers in two dimensions that interact with each other and with a random array of obstacles. In the absence of obstacles, there is a well-defined transition to a cluster or living crystal state for increasing density and run length. We apply a directional drift force to the particles such that they would move at an average drift velocity in the absence of obstacles. In the presence of quenched disorder, the average drift velocity initially increases with increasing run time before reaching a maximum and then decreasing for increasing run time. We correlate the regime where the drift velocity decreases with the onset of the clustering phase. We also show that for increasing density, the obstacles induce an active matter jamming phase, and that the density at which the jamming occurs decreases for increasing run length.

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