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Self-similarity in active colloid motion COLIN CONSTANT, SERGEY SUKHOV, ARISTIDE DOGARIU, Univ of Central Florida - CREOL — The self-similarity of displacements among randomly evolving systems has been used to describe the foraging patterns of animals and predict the growth of financial systems. At micron scales, the motion of colloidal particles can be analyzed by sampling their spatial displacement in time. For self-similar systems in equilibrium, the mean squared displacement increases linearly in time. However, external forces can take the system out of equilibrium, creating active colloidal systems, and making this evolution more complex. A moment scaling spectrum of the distribution of particle displacements quantifies the degree of self-similarity in the colloid motion. We will demonstrate that, by varying the temporal and spatial characteristics of the external forces, one can control the degree of self-similarity in active colloid motion.

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