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**Brownian Motion of Asymmetric Boomerang Colloidal Particles** AYAN CHAKRABARTY, ANDREW KONYA, FENG WANG, JONATHAN SELINGER, Kent State University, KAI SUN, University of Michigan, QI-HUO WEI, Kent State University — We used video microscopy and single particle tracking to study the diffusion and local behaviors of asymmetric boomerang particles in a quasi-two dimensional geometry. The motion is biased towards the center of hydrodynamic stress (CoH) and the mean square displacements of the particles are linear at short and long times with different diffusion coefficients and in the crossover regime it is sub-diffusive. Our model based on Langevin theory shows that these behaviors arise from the non-coincidence of the CoH with the center of the body. Since asymmetric boomerangs represent a class of rigid bodies of more general shape, therefore our findings are generic and true for any non-skewed particle in two dimensions. Both experimental and theoretical results will be discussed.

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