

Abstract Submitted
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Dynamics and interactions of particles in a thermophoretic trap¹

BENJAMIN FOSTER, FRANKIE FUNG, CONNOR FIEWEGER, MYKHAYLO USATYUK, ANITA GAJ, BJ DESALVO, CHENG CHIN, Univ of Chicago — We investigate dynamics and interactions of particles levitated and trapped by the thermophoretic force in a vacuum cell. Our analysis is based on footage taken by orthogonal cameras that are able to capture the three dimensional trajectories of the particles. In contrast to spherical particles, which remain stationary at the center of the cell, here we report new qualitative features of the motion of particles with non-spherical geometry. Singly levitated particles exhibit steady spinning around their body axis and rotation around the symmetry axis of the cell. When two levitated particles approach each other, repulsive or attractive interactions between the particles are observed. Our levitation system offers a wonderful platform to study interaction between particles in a microgravity environment.

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