

Abstract Submitted
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Dimensional transitions for coupled rotational/translational diffusion in powered nanorotors¹ AMIR NOURHANI, Chem. Eng. Dpt., Penn State Univ, PAUL LAMMERT, Phys. Dpt., Penn State Univ, ALI BORHAN, Chem. Eng. Dpt., Penn State Univ, VINCENT CRESPI, Phys. Dpt., Penn State Univ — Small colloidal particles in fluids are well-known to engage in rotational and translational Brownian motion. Over the past several years, experimentalists have developed a new class of colloidal particles which exhibit autonomous powered motion due to consumption of chemical fuels. Two such classes of nanomotor that have been developed are linear and rotary motors. Nanorotors engage in cyclical motions due to asymmetries in the distribution of force on the surface of the particles. We have analyzed the diffusion of powered rotary motors, considering how the addition of a powered component to their motion affects their diffusional properties.

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Amir Nourhani
Chem. Eng. Dpt., Penn State Univ

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