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Rheotaxis of elongated platinum-gold nanoswimmers QUENTIN BROSSEAU, New York University - Courant Institute, YANG WU, New York University - Chemistry department, LEIF RISTROPH, JUN ZHANG, New York University - Courant Institute, MICHAEL WARD, New York University - Chemistry department, MICHAEL SHELLEY, New York University - Courant Institute
— Directed motion of self-propelled colloids has attracted much attention as a possible means to transport microscopic cargo to desired locations. However, active colloids, such as our gold–platinum (Au-Pt) bi-metallic motors (˜2 micrometers) that are powered by hydrogen peroxide (H2O2), are subjected to Brownian motion and move diffusively. These swimmers can be directed via interactions with structured substrates, e.g. within an array of asymmetric pillars. Our current study focuses on realizing the directed motion in an imposed open flow, of these active nanorods. This dynamic response, often referred to as "rheotaxis", is found in many marine organisms. The effect of flow geometry and flow characteristics will be discussed in more details.

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