

Abstract Submitted  
for the CUWIP21 Meeting of  
The American Physical Society

**How Does the Orientation of *Vorticella convallaria* change under variable shear rates?**<sup>1</sup> HANNAH STOCKTON, BRETT KLAASSEN VAN OORSCHOT, RACHEL PEPPER, Univ of Puget Sound — *Vorticella convallaria* are a species of microscopic sessile suspension feeders (MSSFs). MSSFs are critical to the survival of aquatic ecosystems; they feed on bacteria and debris, and may play a significant role in the mitigation of environmental disasters like oil spills and heavy metal contamination. In order to elucidate their ecological role, it is important to understand their feeding behaviors. *Vorticella* and other MSSFs create feeding currents that determine their nutrient uptake rates. These currents, and therefore their feeding rates, depend on both organism orientation and ambient flow speeds, yet the interplay of these in realistic flow conditions has never been studied. For our research, we developed a novel experimental system to investigate the orientation of *Vorticella* under different shear rates. Using an inexpensive two-camera setup and custom-designed 3D-printed flow chamber, we controlled the flow and examined the orientation of individual *Vorticella*. The flexible nature of our system allows it to function as a tool for the 3-dimensional visualization of a wide range of microscopic organisms.

<sup>1</sup>IOS-1755326

Hannah Stockton  
Univ of Puget Sound

Date submitted: 04 Jan 2021

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