Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Viscosity of Sheared Helical filament Suspensions MATTHEW SARTUCCI, JEFF URBACH, DAN BLAIR, Georgetown University, WALTER SCHWENGER, Brandeis University — The viscosity of suspensions can be dramatically affected by high aspect ratio particles. Understanding these systems provides insight into key biological functions and can be manipulated for many technological applications. In this talk, the viscosity as a function of shear rate of suspensions of helical filaments is compared to that of suspensions of straight rod-like filaments. Our goal is to determine the impact of filament geometry on low volume fraction colloidal suspensions in order to identify strategies for altering viscosity with minimal volume fraction. In this research, the detached flagella of the bacteria *Salmonella Typhimurium* are used as a model system of helical filaments and compared to mutated straight flagella of the *Salmonella*. We compare rheological measurements of the suspension viscosity in response to shear flow and use a combination of the rheology and fluorescence microscopy to identify the microstructural changes responsible for the observed rheological response.

Matthew Sartucci
Georgetown University

Date submitted: 06 Nov 2015 Electronic form version 1.4