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**Bacterial Flagella as a Model Rigid Rod of Tunable Shape** WALTER SCHWENGER, Brandeis Univ, SEVIM YARDIMCI, The Francis Crick Institute, THOMAS GIBAUD, Ecole Normale Supérieure de Lyon, HENRY SNOW, Brandeis Univ, JEFF URBACH, Georgetown University, ZVONIMIR DOGIC, Brandeis Univ — In this research, we study the physical properties of suspensions of bacterial flagella from *Salmonella typhimurium* prepared in a variety of rigid polymorphic shapes. Flagella act as a rigid colloidal particle that can exhibit non-trivial geometry including helices of varying dimensions, straight rods, or a combination of the two in the same filament. By controlling the conditions in which flagella are prepared, the polymorphic shape assumed by the filament can be controlled. Utilizing different polymorphic shapes, we combine results from optical microscopy observations of single filaments with bulk rheological measurements to help understand the role that constituent colloidal geometry plays in complex bulk behavior.

Walter Schwenger  
Brandeis Univ

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