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The Effect of Rigid Filament Geometry on Suspension Rheology MATTHEW SARTUCCI, Georgetown University, WALTER SCHWENGER, Brandeis University, DAN BLAIR, JEFF URBACH, Georgetown University — Suspensions of stiff, high aspect ratio particles can have dramatic effects on solvent rheology even at low volume fractions. In order to explore methods of enhancing this impact, we investigated how the geometry of suspended particles can be tuned to amplify their rheological effects. We investigated different helical shapes, ranging from straight rods to more tightly wound coils. We used bacterial flagella harvested from Salmonella Typhimurium as our experimental system, and utilized both mutations and environmental factors to access a range of filament geometries. We paired bulk rheology with microscopy to understand the changes in suspension behavior induced by morphological transitions.

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