Viscous streaming in 3D: Effects of geometry and topology[1] FAN
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streaming flows generated by oscillating bodies highlighted the importance of curva-
ture effects in 2D geometries. Here we extend our understanding to 3D systems by
investigating a series of shapes, starting from well-understood spheres and progres-
sively breaking geometric and actuation symmetry. We leverage tools from direct
numerical simulation and flow visualization to establish a sparse representation of
often complex and dense 3D flows, and employ dynamical system theory to system-
atically analyze and characterize the underlying streaming dynamics. Capitalizing
on the same protocol, we further explore streaming flows generated by topologically
distinct bodies.

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