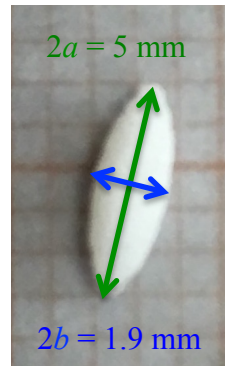
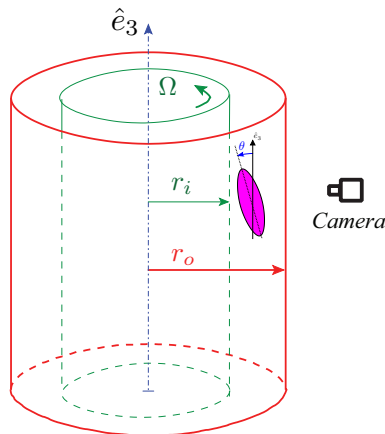


Motion of a Neutrally Buoyant Ellipsoid in Viscous Shear Flow

Jorge Peixinho¹ and Jean-Régis Angilella²

¹Laboratoire Ondes et Milieux Complexes, CNRS et Université Le Havre Normandie

²Université de Caen Normandie, ESIX, 50130 Cherbourg



Particle aspect ratio

$$\lambda = \frac{a}{b} \simeq 2.63$$

Confinement

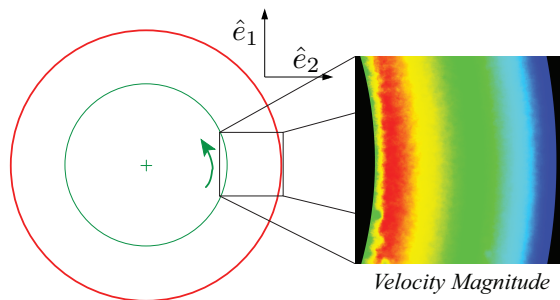
$$\kappa = \frac{2a}{d} \simeq 1$$

Shear rate

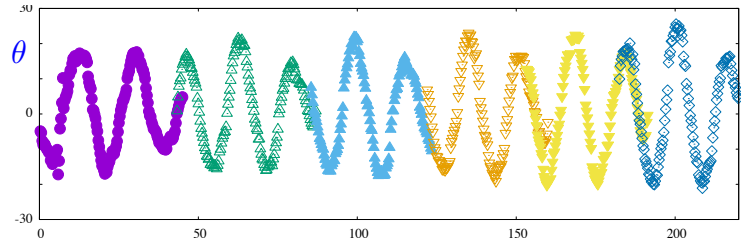
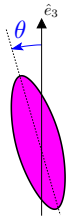
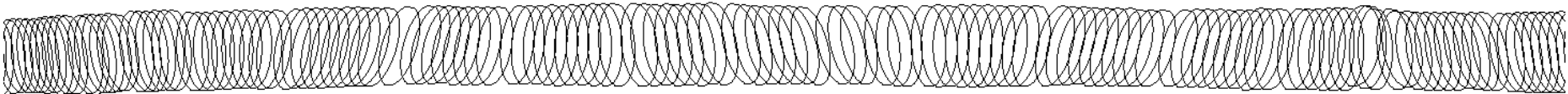
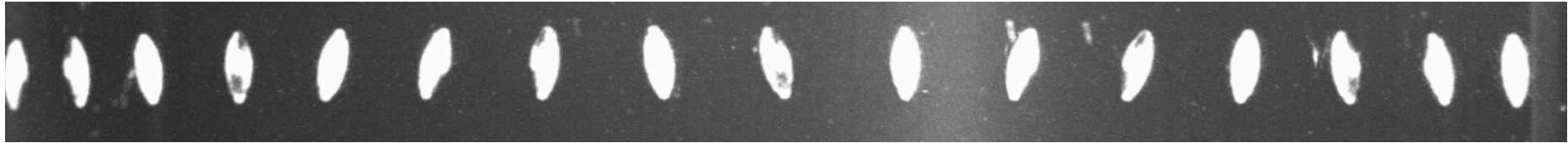
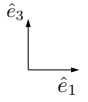
$$\dot{\gamma} = \frac{\Omega r_i}{d}$$

Fluid inertia

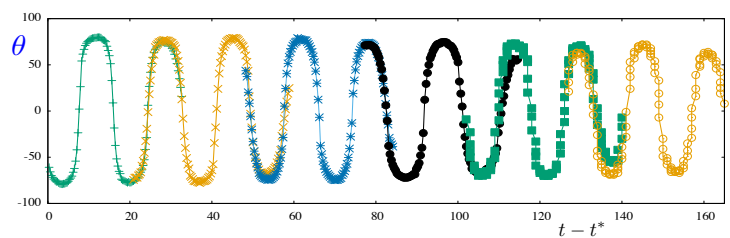
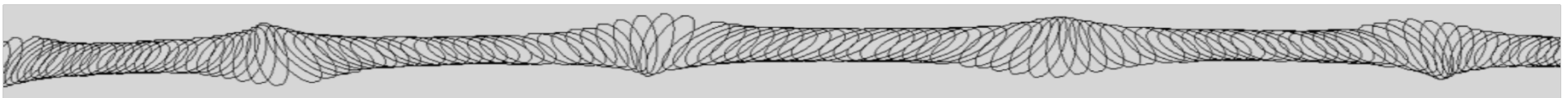
$$Re_a = \frac{a^2 \dot{\gamma}}{\nu}$$



Motion of a Neutrally Buoyant Ellipsoid in Viscous Shear Flow



Initial condition: vertical
Log-rolling motion
Jeffery orbits



Initial condition: oblique
Jeffery orbits?
What about other particles and large Re ?