Supplementary Material to
"Transition to turbulence in Taylor-Couette ferrofluidic flow"

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Legends for videos in SM

- Movie 1:
  Movie 1 demonstrates SWO_{qp} for $s_x = 0.82$ (quasiperiodic regime), isosurfaces of the azimuthal voticity $\eta = \partial_z u_r - \partial_r u_\theta = \pm 100$ (red: $\eta = 100$, yellow: $\eta = -100$).

- Movie 2:
  Movie 2 demonstrates SWO_{qp} for $s_x = 0.82$ (quasiperiodic regime), axial velocity profiles u_z for $\theta = 0$ (black) and $\theta = \pi/2$ (red) in the annulus at the midgap.

- Movie 3:
  Movie 3 demonstrates SWO_{qp} for $s_x = 0.825$ (quasiperiodic regime), isosurfaces of the azimuthal voticity $\eta = \partial_z u_r - \partial_r u_\theta = \pm 100$ (red: $\eta = 100$, yellow: $\eta = -100$).

- Movie 4:
  Movie 4 demonstrates SWO_{qp} for $s_x = 0.825$ (quasiperiodic regime), axial velocity profiles u_z for $\theta = 0$ (black) and $\theta = \pi/2$ (red) in the annulus at the midgap.

- Movie 5:
  For $s_x = 0.9$ (turbulent regime), Movie 5 demonstrates isosurfaces of the angular momentum $ru_\theta = 80$.

- Movie 6:
  For $s_x = 0.9$ (turbulent regime), Movie 6 demonstrates isosurfaces of the azimuthal voticity $\eta = \partial_z u_r - \partial_r u_\theta = \pm 100$ (red: $\eta = 100$, yellow: $\eta = -100$).

- Movie 7:
  For $s_x = 0.9$ (turbulent regime), Movie 7 demonstrates axial velocity profiles u_z for $\theta = 0$ (black) and $\theta = \pi/2$ (red) in the annulus at the midgap.

- Movie 8:
  Movie 8 demonstrates SWO_p for $s_x = 0.8$ (periodic regime), axial velocity profiles u_z for $\theta = 0$ (black) and $\theta = \pi/2$ (red) in the annulus at the midgap.

- Movie 9:
  Movie 9 demonstrates SWO_{qp} for $s_x = 0.815$ (quasiperiodic regime), axial velocity profiles u_z for $\theta = 0$ (black) and $\theta = \pi/2$ (red) in the annulus at the midgap.

- Movie 10:
  Movie 10 demonstrates SWO_p: for $s_x = 0.8$ (periodic regime), isosurfaces of the angular momentum $ru_\theta = 80$.

- Movie 11:
  Movie 11 demonstrates SWO_p for $s_x = 0.8$ (periodic regime), isosurfaces of the azimuthal voticity $\eta = \partial_z u_r - \partial_r u_\theta = \pm 100$ (red: $\eta = 100$, yellow: $\eta = -100$).

- Movie 12:
  Movie 12 demonstrates SWO_p for $s_x = 0.8$ (periodic regime), isosurfaces of the relative angular momentum $ru_\theta - \int_0^\tau ru_\theta dt = \pm 5$ (red: $\eta = 5$, yellow: $\eta = -5$).

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