

## Electronic supplementary information

September 7, 2023

- **Video 1** - Shows four representations of the  $\alpha^{(0)} = 300, \alpha^{(1)} = -100$  experiment. The upper left shows vorticity and concentration as purple/green and blue respectively. The upper right shows nematic alignment eigenvalue and eigenvector as colored streamlines. The lower left shows polarization as colored vectors. The lower right shows fluid velocity as colored vectors.
- **Video 2** - Shows four representations of the  $\alpha^{(0)} = 800, \alpha^{(1)} = -100$  experiment. The upper left shows vorticity and concentration as purple/green and blue respectively. The upper right shows nematic alignment eigenvalue and eigenvector as colored streamlines. The lower left shows polarization as colored vectors. The lower right shows fluid velocity as colored vectors.