

Supplementary Information

Shear-induced Dynamics of an Active Belousov-Zhabotinsky Droplet

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S1. Synchronous oscillations in concentration c_1 and droplet's swimming speed V_d

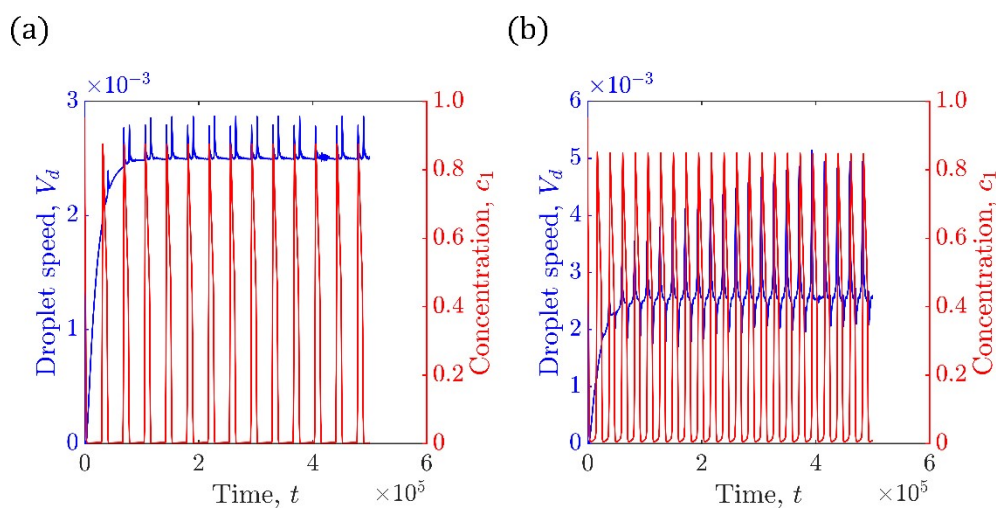


Figure S1.: Time evolution of droplet's swimming speed V_d and concentration c_1 in the presence of shear flow of strength $V_w = 0.005$ at (a) $\Delta\kappa = 0.3$ and (b) $\Delta\kappa = -0.3$

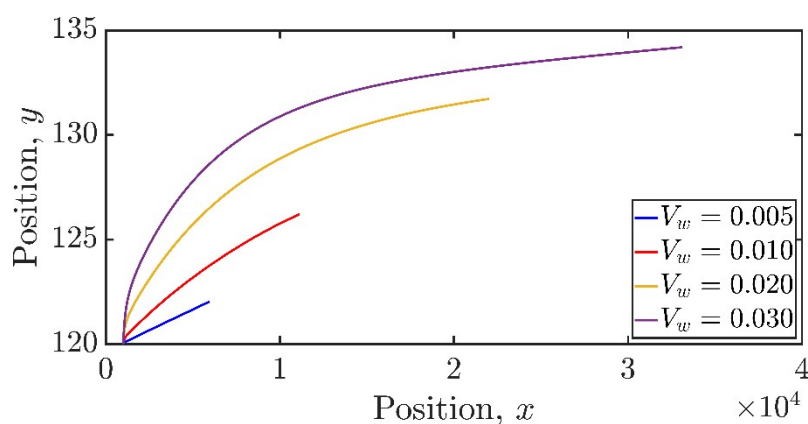
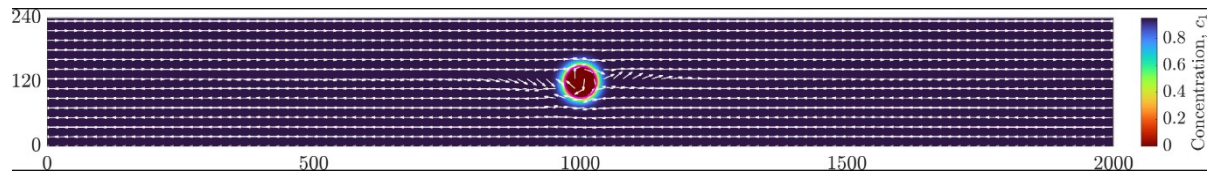


Figure S2: Trajectories of a passive droplet ($\Delta\kappa = 0$) placed initially at the channel centre at varying shear flow strengths

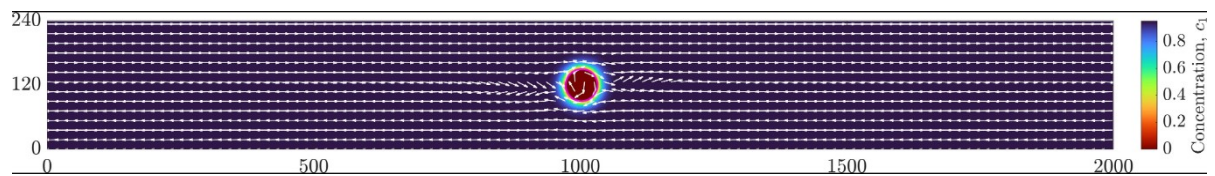
S2. Trajectories of a passive droplet at varying shear flow strengths

S3. Movie-1



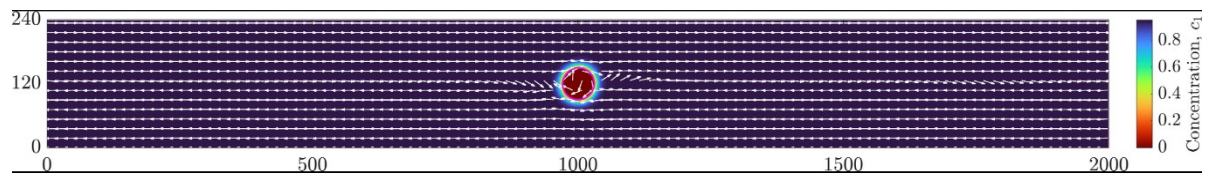
The movie shows the motion of active BZ droplet ($\Delta\kappa = 0$) in the channel subjected to a shear flow of strength $V_w = 0.005$. The velocity field shown is in droplet's frame.

S4. Movie-2



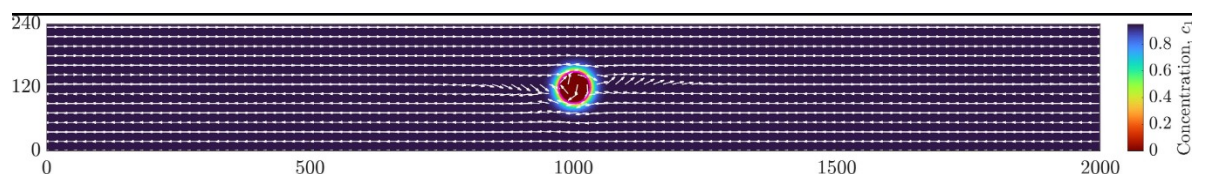
The movie shows the motion of active BZ droplet ($\Delta\kappa = 0.3$) in the channel subjected to a shear flow of strength $V_w = 0.005$. The velocity field shown is in droplet's frame.

S5. Movie-3



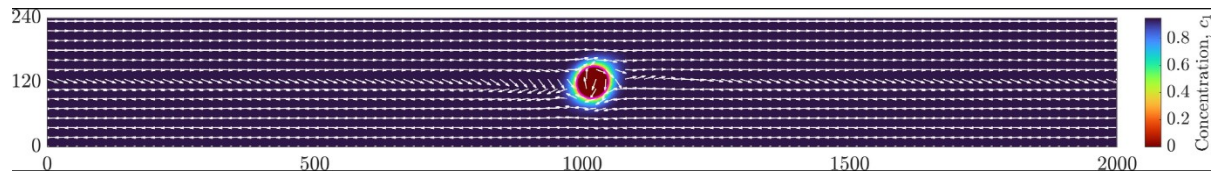
The movie shows the motion of active BZ droplet ($\Delta\kappa = 0.3$) in the channel subjected to a shear flow of strength $V_w = 0.020$. The velocity field shown is in droplet's frame.

S6. Movie-4



The movie shows the motion of active BZ droplet ($\Delta\kappa = -0.3$) in the channel subjected to a shear flow of strength $V_w = 0.005$. The velocity field shown is in droplet's frame.

S7. Movie-5



The movie shows the motion of active BZ droplet ($\Delta\kappa = -0.3$) in the channel subjected to a shear flow of strength $V_w = 0.020$. The velocity field shown is in droplet's frame.