FIGURES

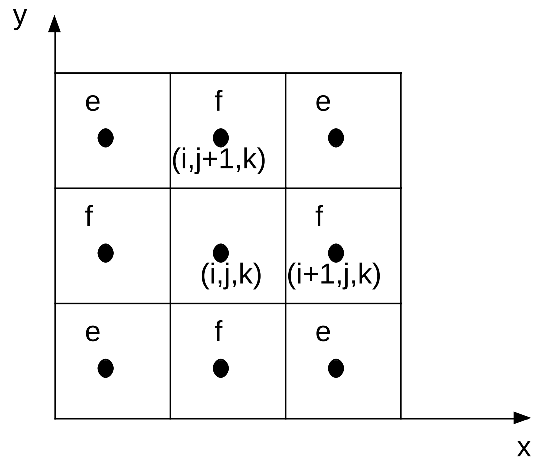

FIG. 1. Cross-section of Car
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K_8 kernel, and summing color f
There are two jm,okr)et fh cceellll s. aTbhoev
the f cells. There are c cells a

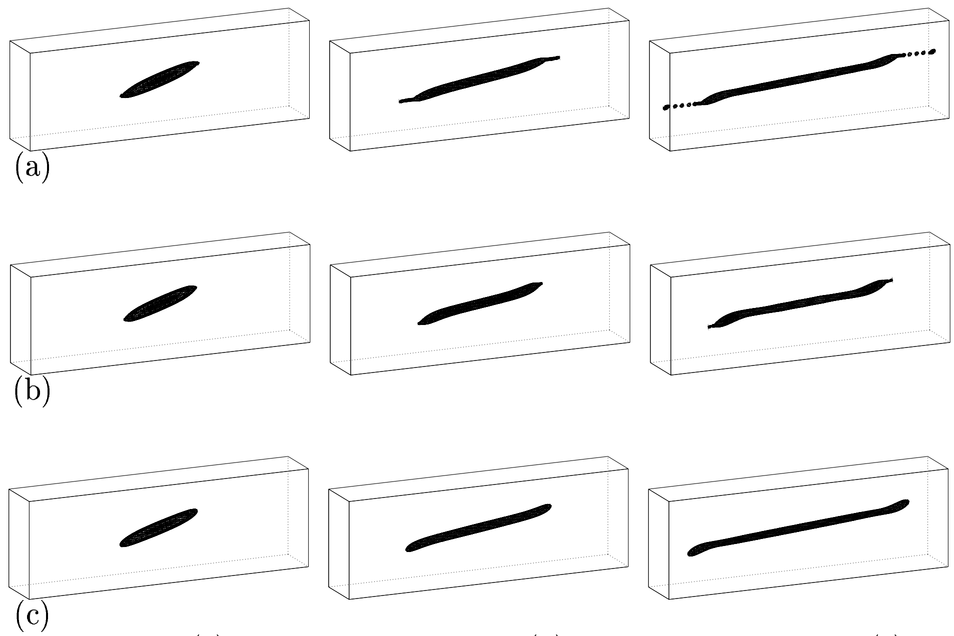


FIG. 2. $t = 5, 10, 15$s. (a) CSS with smoothing, (b) CSF with smoothing, (c) CSS without smoothing. $Re = 1, Ca = 0.625, \lambda = 0.05$.

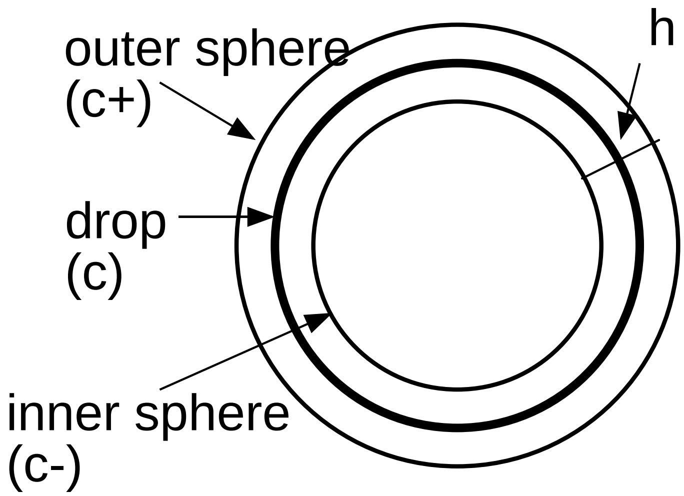


FIG. 3. Schematic of formulation for the inclusion of the linear equation of state for the surfactant concentration. The outer sphere is associated with the color function c_+, the inner sphere with c_-, the drop interface with c.

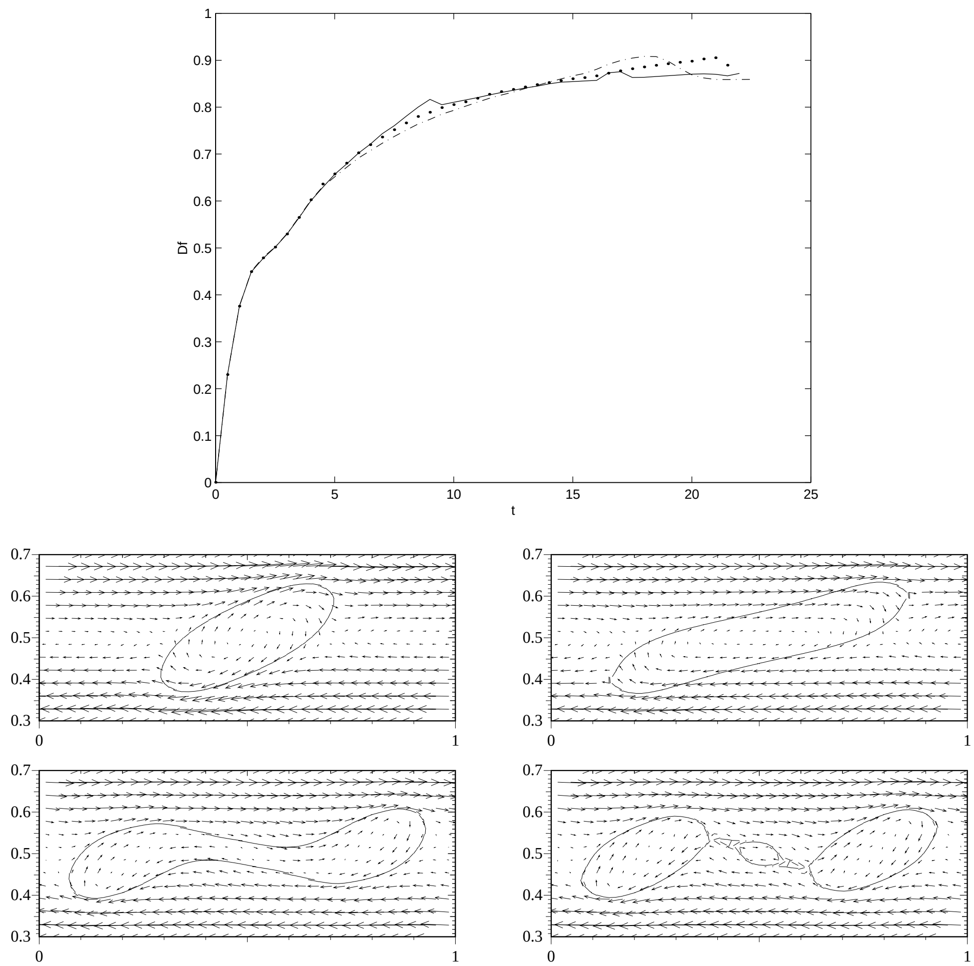


FIG. 4. Convergence study for surfactant layer thickness defined in Section IV. $Re = 10, Ca = 0.16, r = 0.2$. $1 \times 0.5 \times 1$ box, $64 \times 32 \times 64$. Plot of deformation parameter Df vs t(s), for h = mesh cell size 1/64 (-.), 1/2 mesh (.), 1/10 mesh (-), showing agreement for surfactant layer thickness of the order of the mesh cell size. Velocity fields are displayed at t=2.5, 7.5, 16.5, 22s, for the x-z cross-section through the center. The computational box is sized to induce the drop to interact with neighbors and develop the kinked neck.

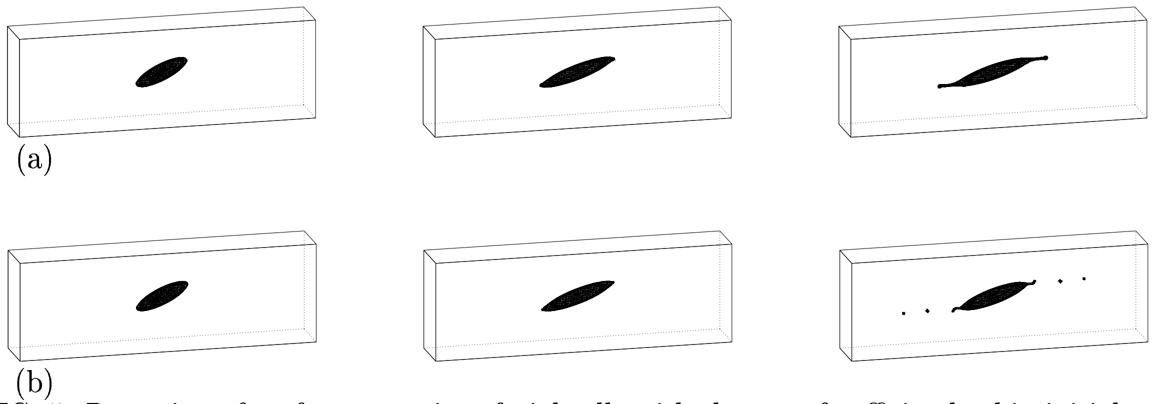


FIG. 5. Retention of surfactant on interfacial cells with the use of sufficiently thin initial surfactant layer. $Re = 1, Ca = 0.2, r = 0.3, t = 4, 8, 12$s. $h =$ (a) $\Delta x/3$, (b) $\Delta x/10$. Computational domain $3 \times 0.5 \times 1$, mesh $192 \times 32 \times 64$.

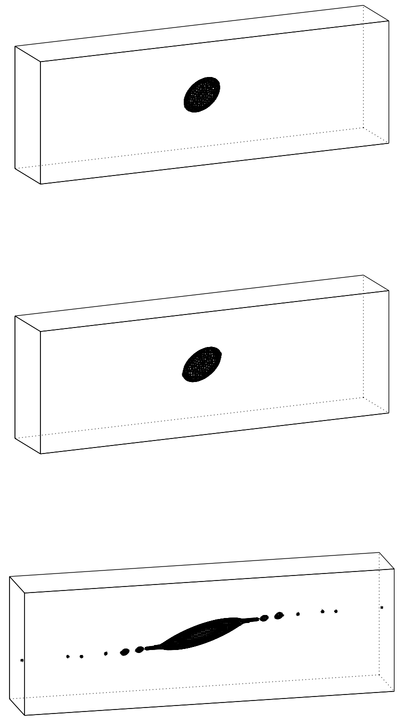


FIG. 6. $Re = 1, Ca = 0.2, \lambda = 0.05$. From top, $r = 0$ (a steady solution is reached by t=2s), $r = 0.1$ (t=10s), 0.3 (t=16s).

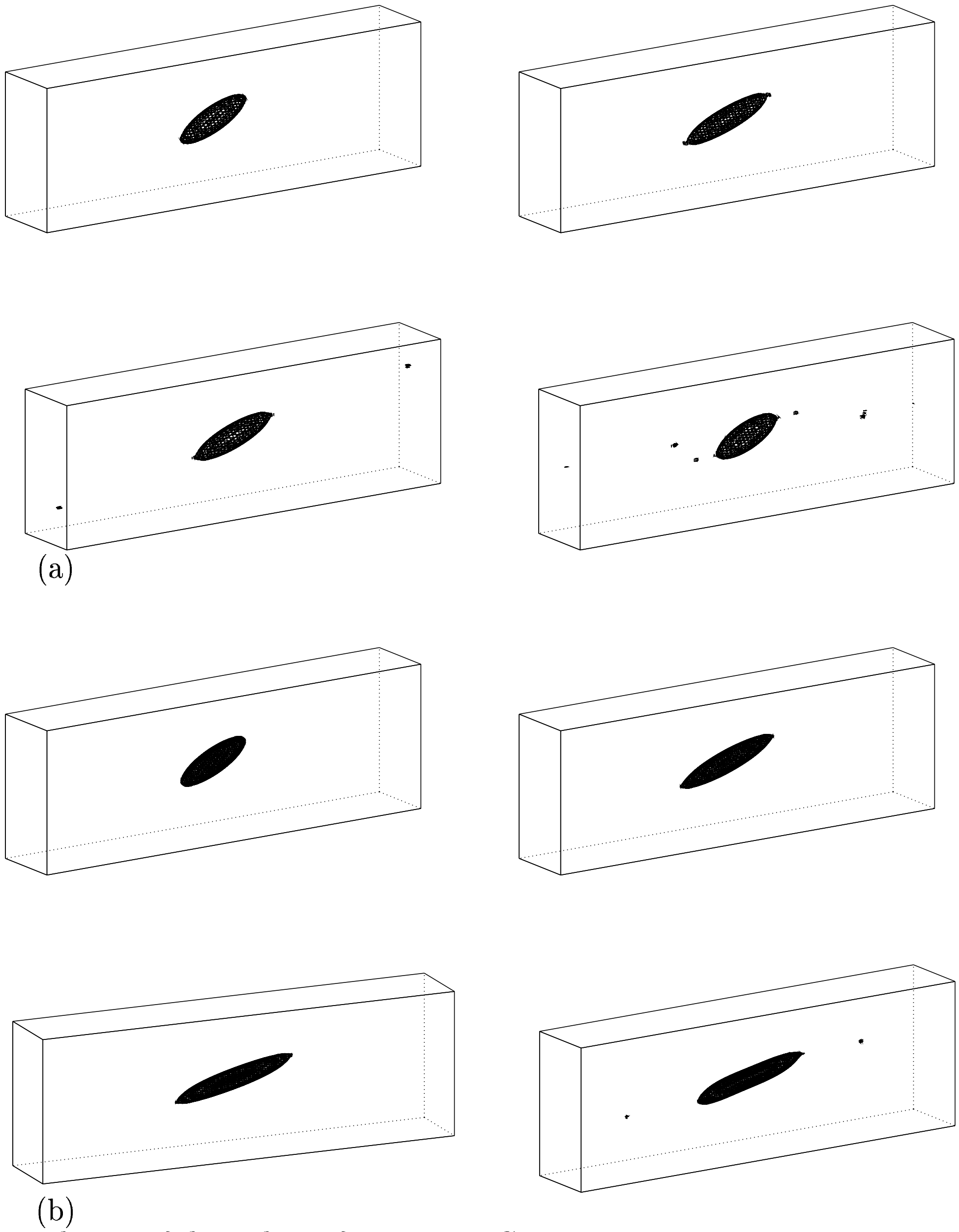


FIG. 7. Evolution of drop shape for $Re = 1, Ca = 0.2, r = 0.3, t = 4, 8, 12, 16$s. (a) Mesh $128 \times 32 \times 64$. (b) Mesh $192 \times 48 \times 96$.

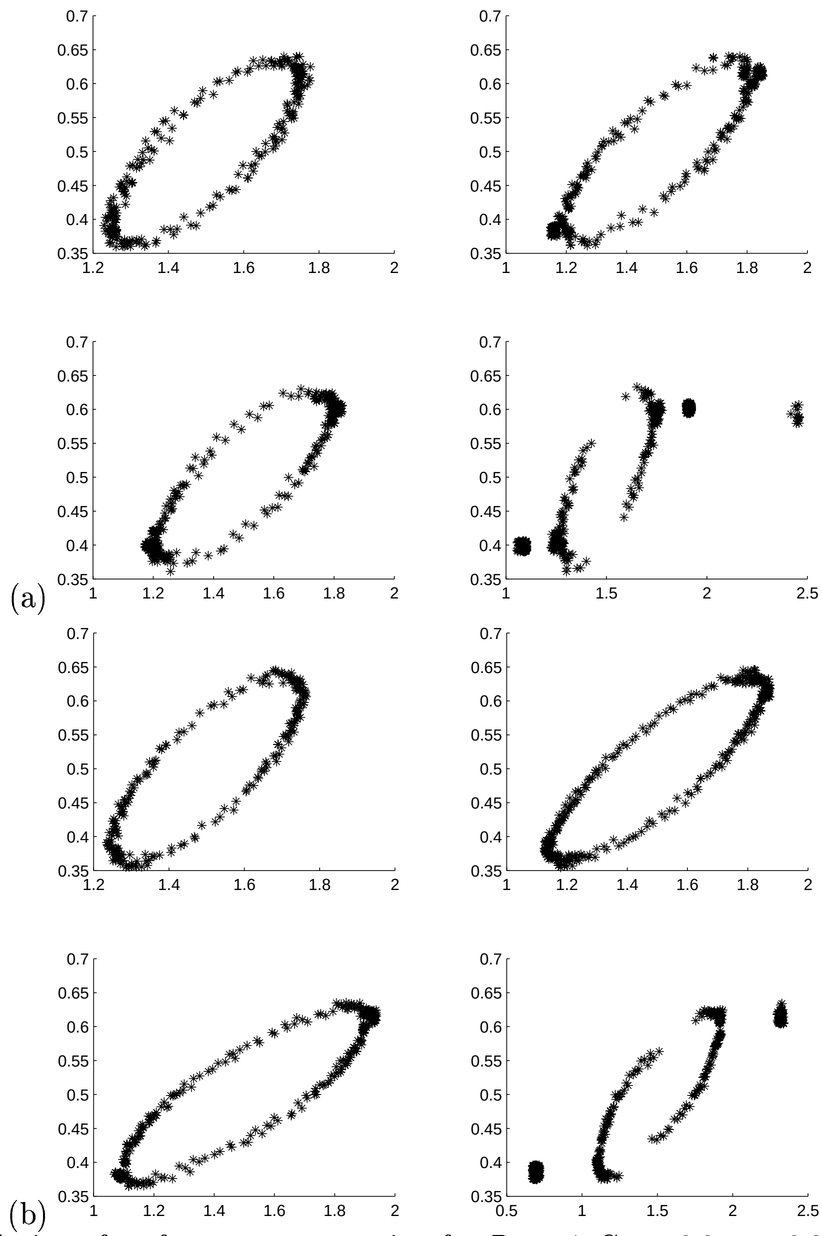
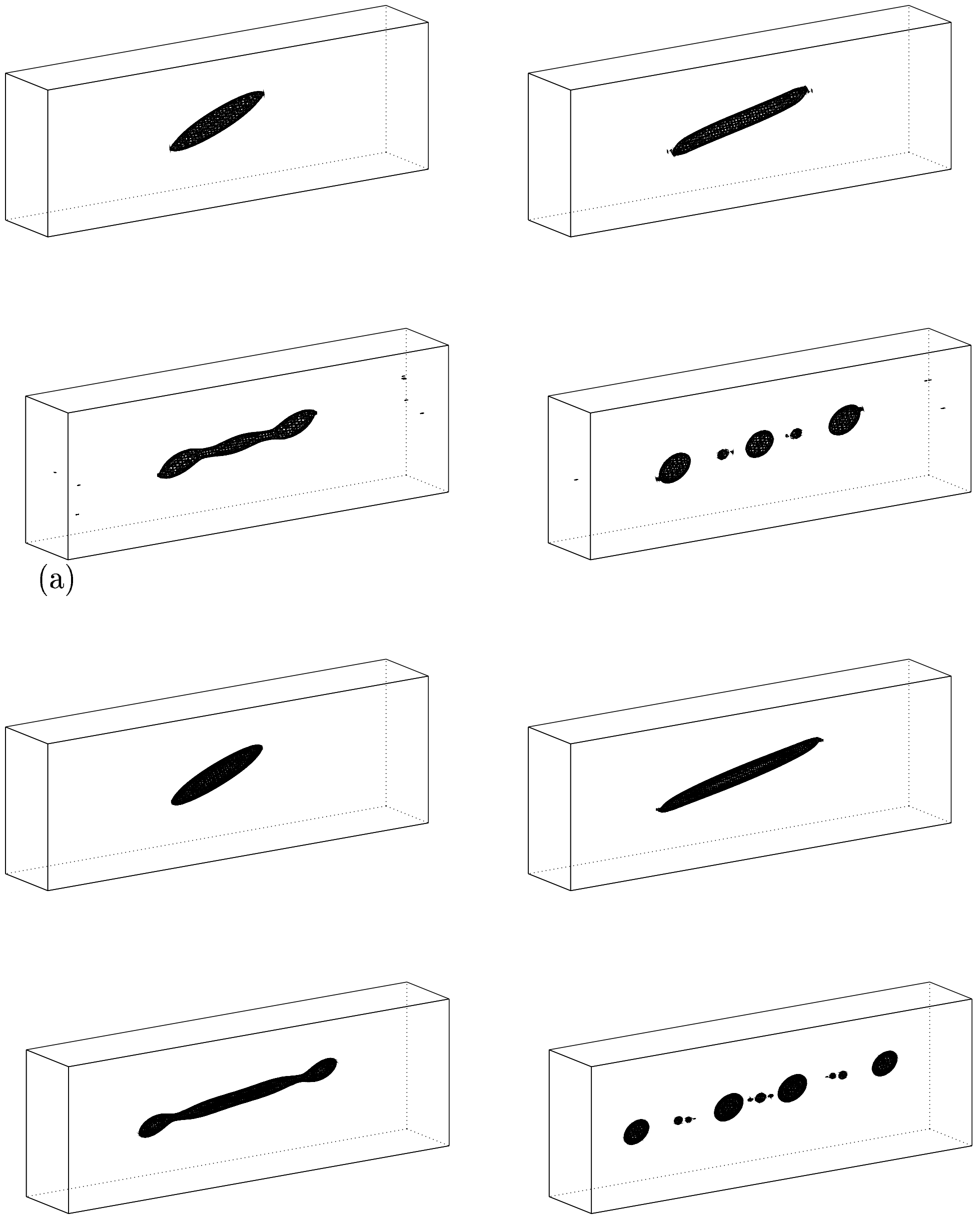


FIG. 8. Evolution of surfactant concentration for $Re = 1, Ca = 0.2, r = 0.3, t = 4, 8, 12, 16$s. (a) Mesh $128 \times 32 \times 64$. (b) Mesh $192 \times 48 \times 96$.



(a)

(b)

FIG. 9. Evolution of drop shape for $Re = 1, Ca = 0.2, r = 0.5, t = 4, 8, 12, 16$s. (a) Mesh $128 \times 32 \times 64$. (b) Mesh $192 \times 48 \times 96$.

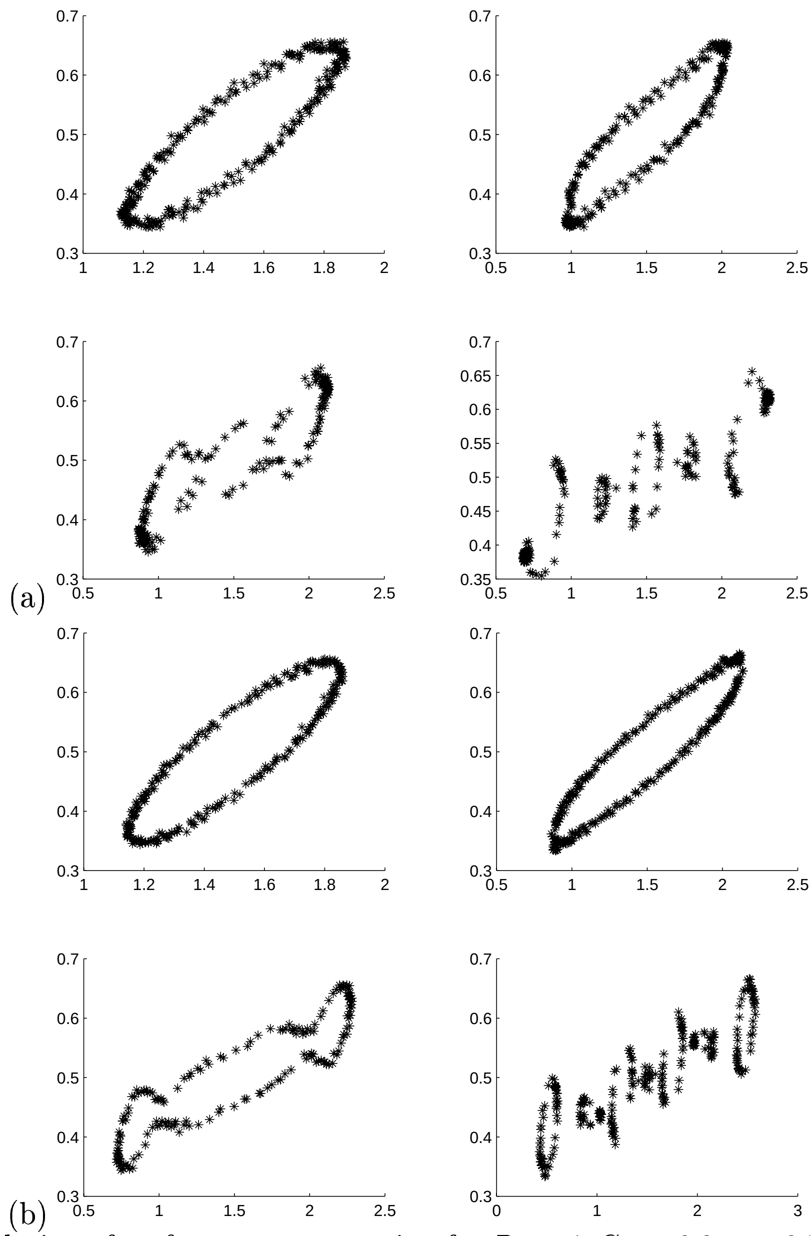


FIG. 10. Evolution of surfactant concentration for $Re = 1, Ca = 0.2, r = 0.5, t = 4, 8, 12, 16$s. (a) Mesh $128 \times 32 \times 64$. (b) Mesh $192 \times 48 \times 96$.