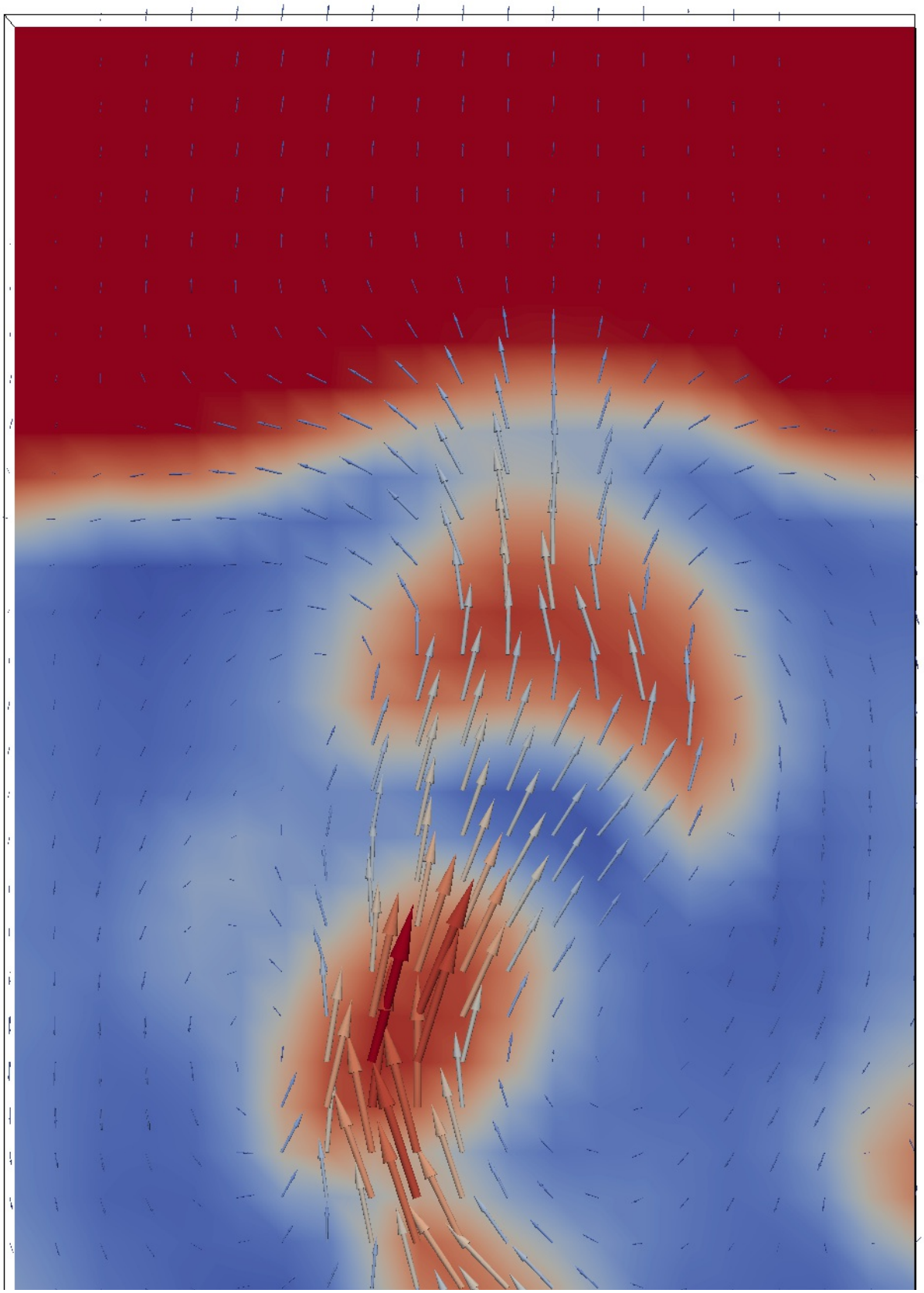
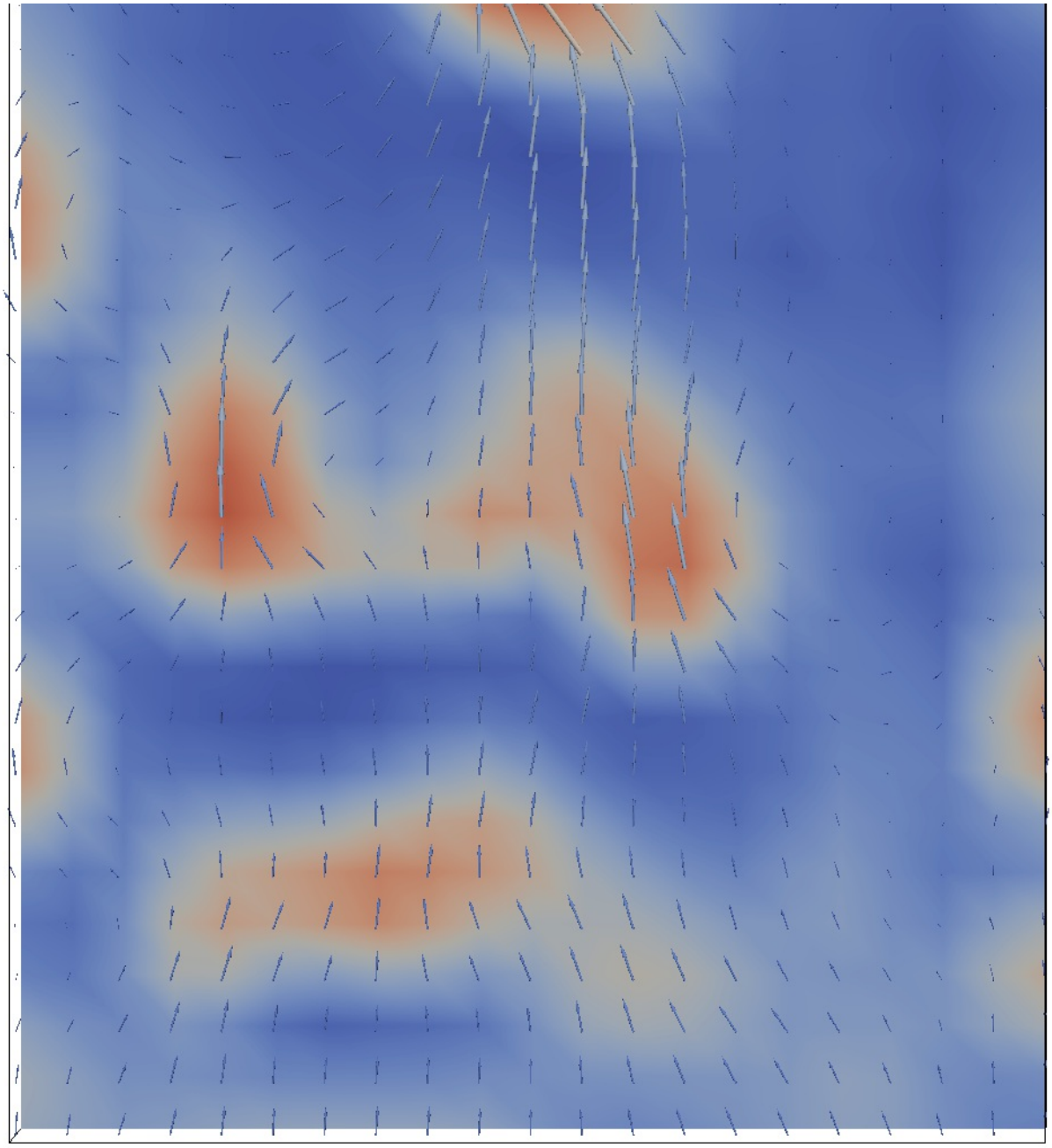
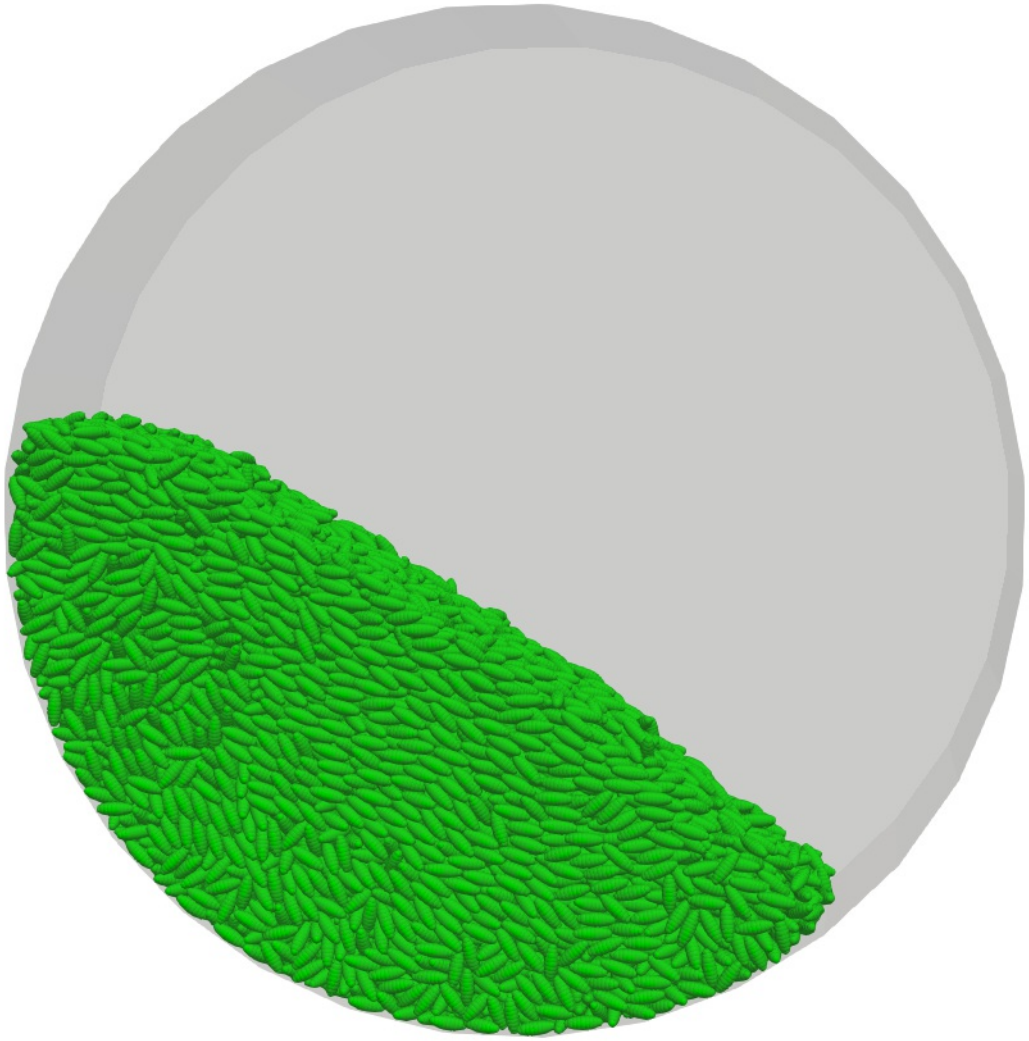
Institut of Process Engineering
Chair of Mechanical Process Engineering

Research

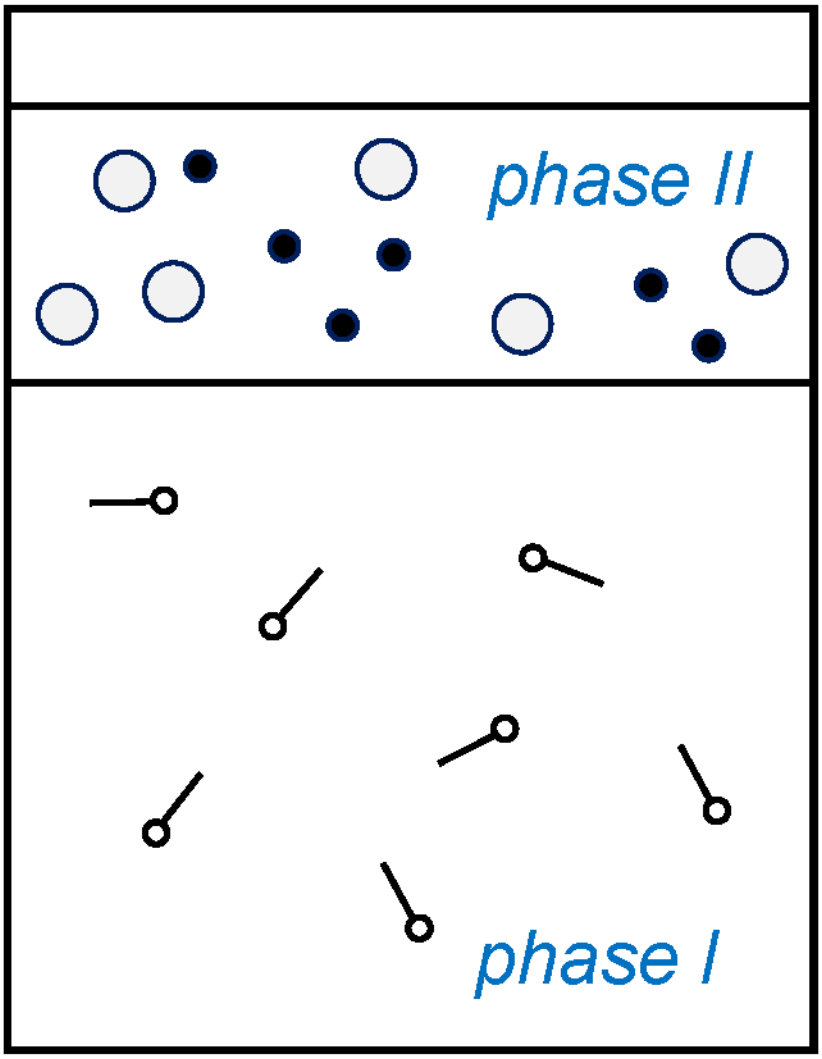
Multiphase Flow







Nano-Particles



high sl
ultrasonic

---

phase I: *water*
surfactant
initiator

phase II: *oil*
monomer

$$
\begin{aligned}
\vartheta_f = & \left[l_f^{(\mathrm{idw})} u_{i,P} + \left(1 - l_f^{(\mathrm{idw})}\right) u_{i,F} + \left.\overline{\frac{\partial u_i}{\partial x_j}}\right|_f r_{j,f} \right] \hat{n}_{i,f} \\
& - \hat{d}_f \left\{ \frac{p_F - p_P}{\Delta s_f} - \rho_f \left[\left. \frac{l_f^{(\mathrm{idw})}}{\rho_P} \frac{\partial p}{\partial x_i} \right|_P + \frac{1 - l_f^{(\mathrm{idw})}}{\rho_F} \left. \frac{\partial p}{\partial x_i} \right|_F \right] \hat{s}_{i,f} \right\} \\
& + \hat{d}_f \left\{ \left[l_f^{(\mathrm{dw})} S_{i,P} + \left(1 - l_f^{(\mathrm{dw})}\right) S_{i,F} \right] \hat{s}_{i,f} - \rho_f \left[\frac{l_f^{(\mathrm{idw})}}{\rho_P} S^{\star}_{i,P} + \frac{1 - l_f^{(\mathrm{idw})}}{\rho_F} S^{\star}_{i,F} \right] \hat{s}_{i,f} \right\} \\
& + c_f^o \hat{d}_f \left\{ \vartheta_f^o - \left[l_f^{(\mathrm{idw})} u_{i,P}^o + \left(1 - l_f^{(\mathrm{idw})}\right) u_{i,F}^o + \left.\overline{\frac{\partial u_i}{\partial x_j}}\right|_f^o r_{j,f} \right] \hat{n}_{i,f} \right\} .
\end{aligned}
$$