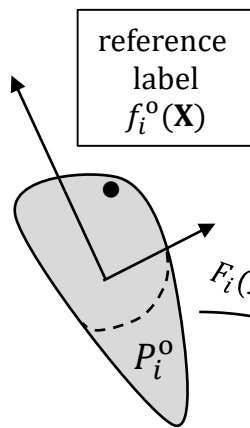


## Reference particle



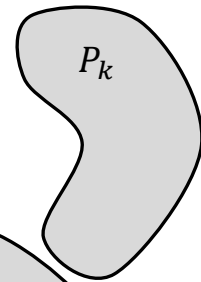
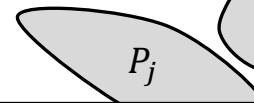
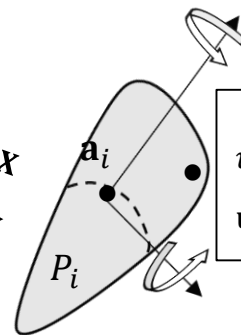
## Particle configuration

PDE in  $\Omega(t)$

$$-\mu \Delta \mathbf{u} + \nabla p = \mathbf{0}$$
$$\nabla \cdot \mathbf{u} = 0$$
$$-\rho^2 \Delta u + \nabla u = 0$$

Boundary conditions

$$u(\mathbf{x}) = f_i^0(\mathbf{X})$$
$$\mathbf{u}(\mathbf{x}) = \frac{d\mathbf{a}_i}{dt} + \frac{dR_i}{dt} \mathbf{X}$$



$$F_i(\mathbf{X}, t) = \mathbf{a}_i(t) + R_i(t) \mathbf{X}$$