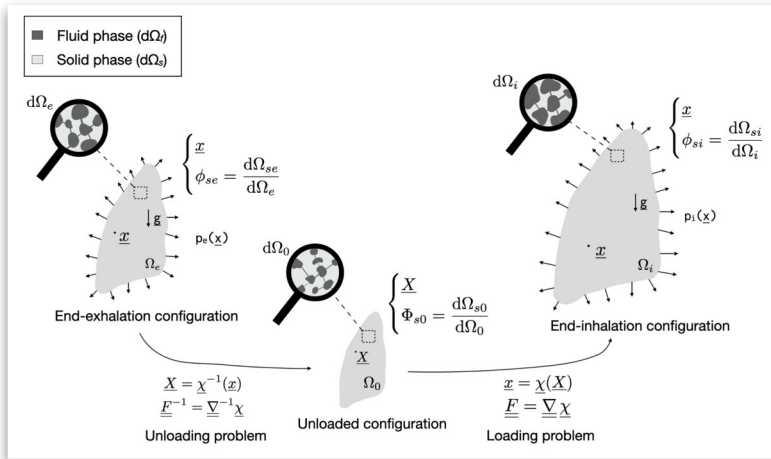


Lung modeling Boundary conditions

- Elements of physiology
- First modeling approach: homogeneous pleural pressure + frictionless contact with thoracic cage [Patte, Genet & Chapelle, 2022, *Biomech. Model. Mecanobiol.*]
- Second modeling approach: gravity + balanced pleural pressure [Peyraut & Genet, *In preparation*]



$$\min_p \frac{1}{2} \int_{\partial\Omega} (\nabla_s p - \nabla_s \tilde{p})^2 dS$$

$$p \mid \begin{cases} \int_{\omega} \rho \phi_s \underline{g} d\Omega - \int_{\partial\Omega} p \underline{n} dS = \underline{0} \\ \int_{\partial\omega} \tilde{\underline{x}} \times p \underline{n} dS = 0 \\ \int_{\partial\omega} (p - \tilde{p}) dS = 0 \end{cases}$$

