

# Modelli computazionali multifisici

## Poroelasticità e accoppiamenti chemo-meccanici

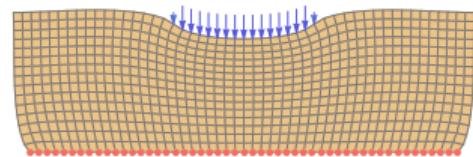
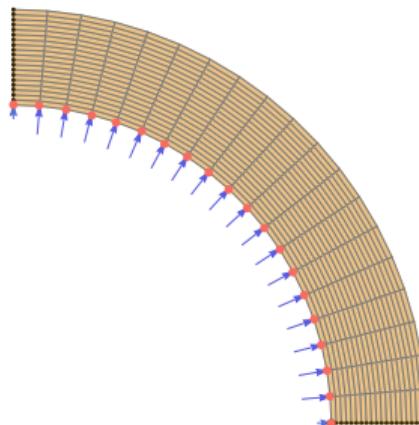
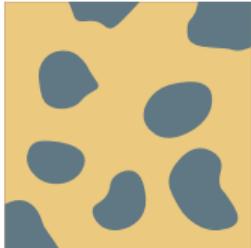
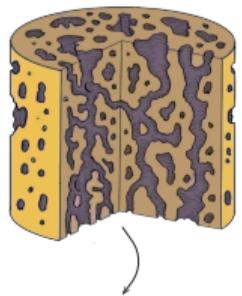
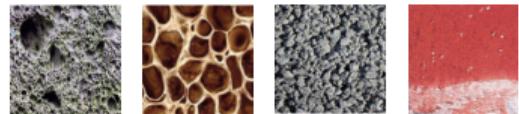
Alessandro Mastrofini

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Università degli Studi di Roma Tor Vergata

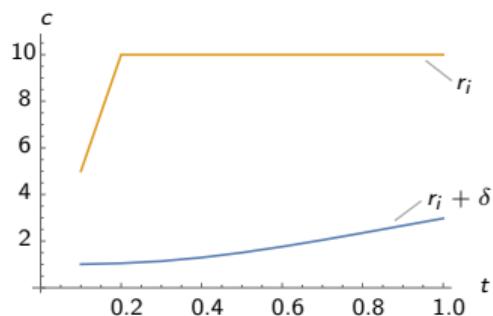
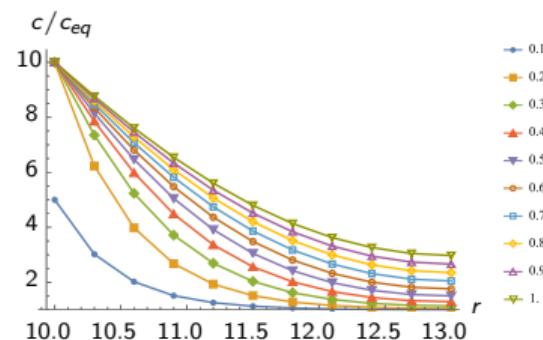
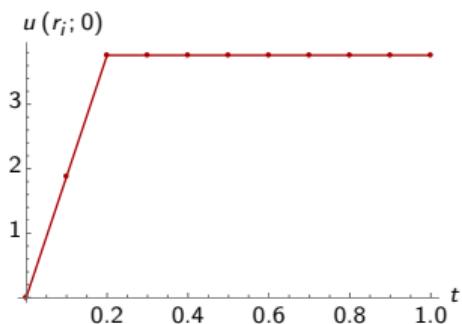
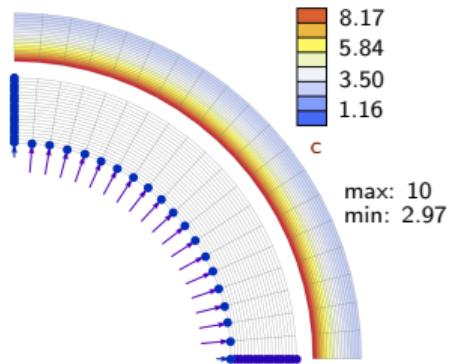
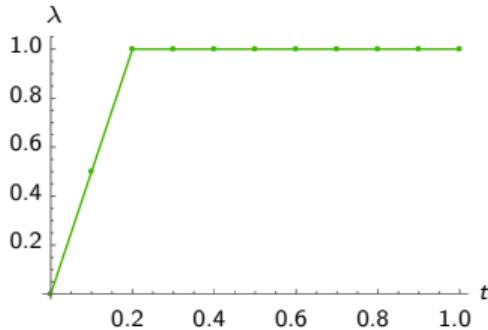
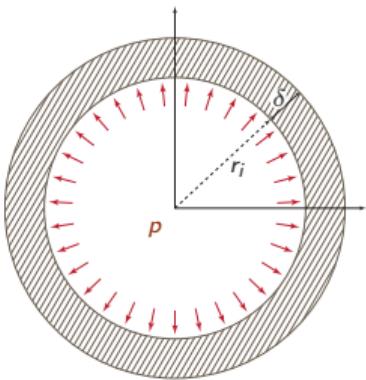
2022

# Multiphysics

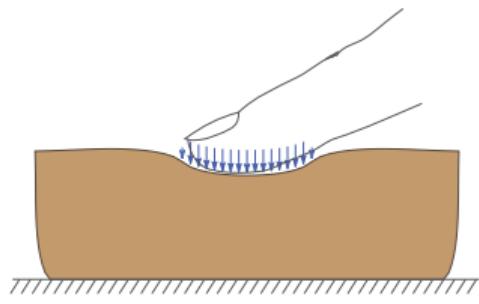
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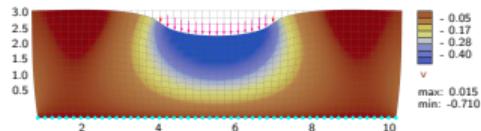
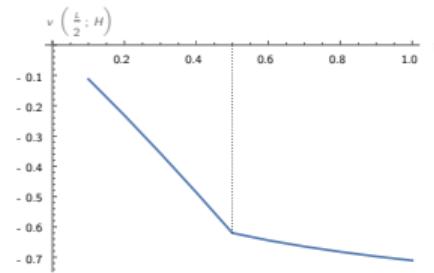
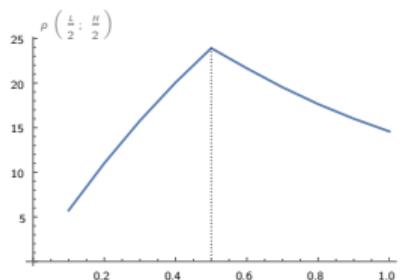
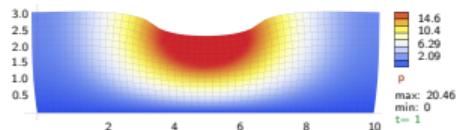
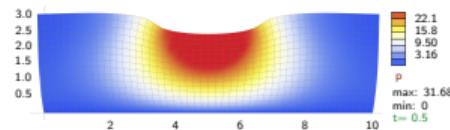
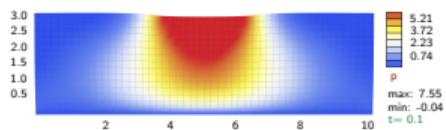
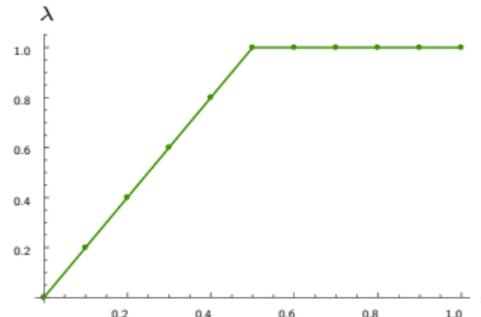
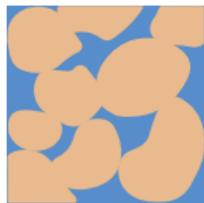
# Uncoupled response



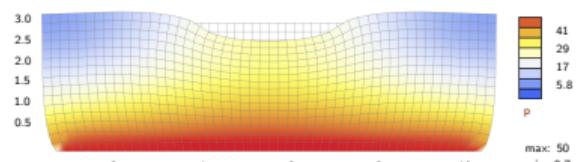
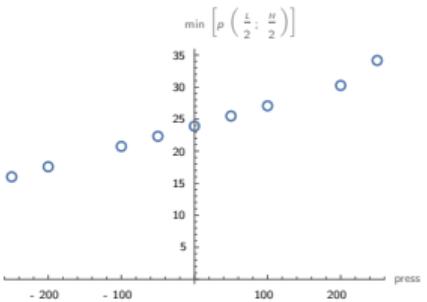
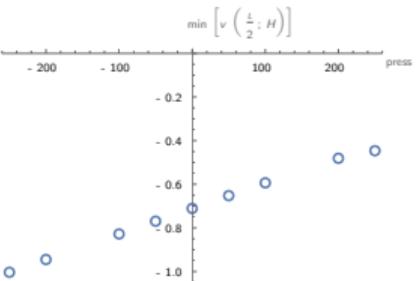
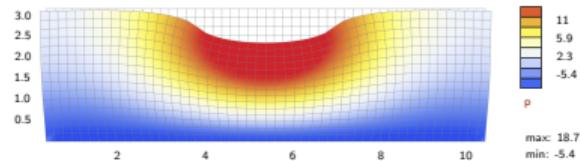
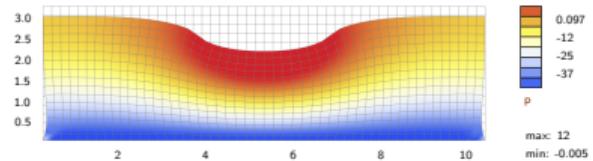
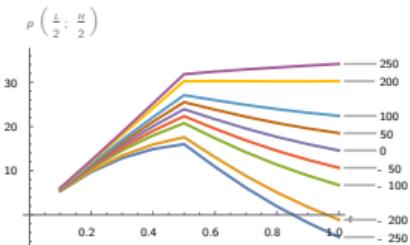
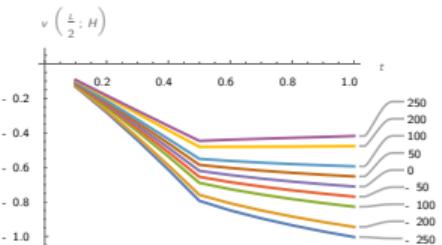
# Poroelasticity



$$\Omega_f (c - c_0) = \zeta = \alpha \varepsilon_{vol} + \frac{p}{M}$$

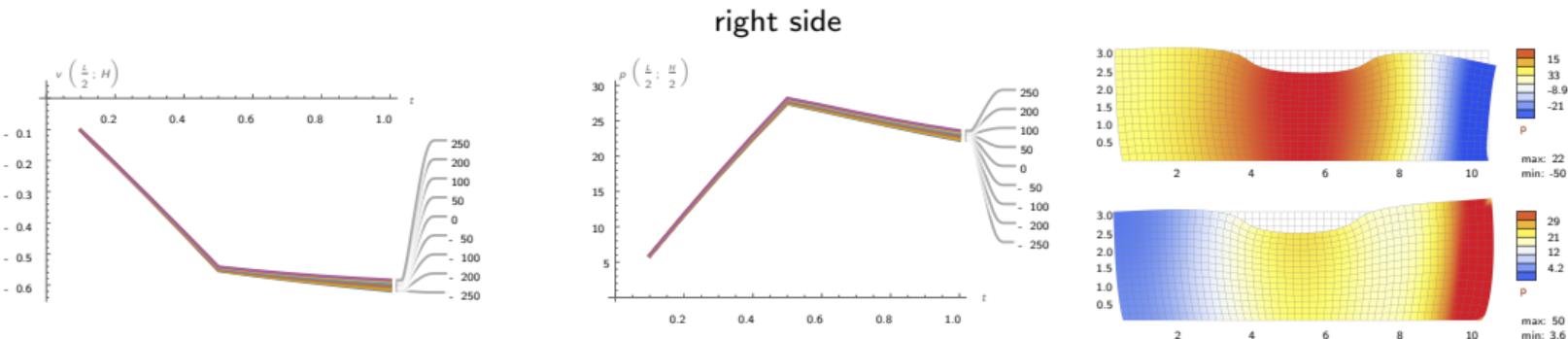


# Drained conditions



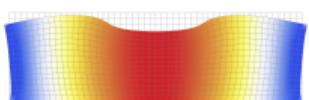
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SMTAddEssentialBoundary[  
  Line[{{0,0},{L,0}},"p"],1->Line[{{press}}]]
```

# Asimmetry



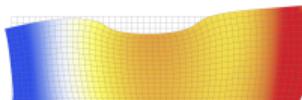
both side

same BC



$$\Delta p = 1.5, \Delta v = 0.7$$

opposite BC



$$\Delta p < 10^{-15}, \Delta v < 10^{-15}$$

uncoupled response

```
SMTAddEssentialBoundary["p", 1 -> 0];
```

