Fracture Healing

The aim of this lab is to complete an implementation of a simplified version of Simon et al., 2011. We will assume a perfect blood perfusion in the full domain such that the revascularization process can be neglected. Furthermore, the different tissue types are represented by their relative concentrations $c(x, t)_i$.

The description of the simulation is given in the template file "concChange.H".

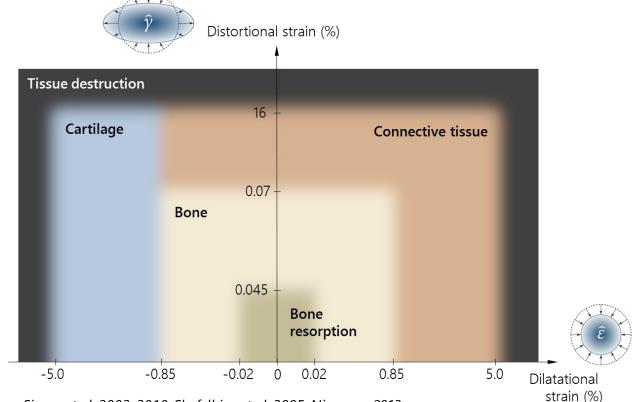
Tasks

- 1. Download the template implementation from the course site.
- 2. Edit the "concChange.H"-file such that the tissue type composition of the elements changes according to the mechanoregulated differentiation hypotheses of Claes & Heigele.
- Use the makefile to compile the code and run it via: ./labFracHealing 50 < materials

Suggestions

- The executable needs an integer argument that defines the number of iterations following from an input stream that defines the initial material distribution
- The concentrations are saved in the dat-folder after each iteration with the formatation:

 Column Row Concentration <- separated by one tab



Simon et al. 2002, 2010, Shefelbine et al. 2005, Niemeyer 2013

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