Lab 08

Elasticity equations. deal.II step-8.

Advanced Topic in Scientific Computing - SISSA, UniTS, 2024-2025

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Assignment

- Read the documentation of `step-8`.
- Modify `step-8` so to implement the following set of boundary conditions:

$$\begin{cases} \mathbf{u} = \mathbf{0} & \text{on } \{x = -1\}, \\ \sigma(\mathbf{u})\mathbf{n} = \mathbf{g} & \text{on } \{x = 1\}, \\ \sigma(\mathbf{u})\mathbf{n} = \mathbf{0} & \text{elsewhere on } \partial\Omega, \end{cases}$$

where $\sigma(\mathbf{u}) = C : \varepsilon(\mathbf{u})$ and $\mathbf{g} = [10, 10]^T$.

These conditions model a plate fixed on its left side, free stress conditions on the top and bottom sides, and a normal traction force on its right side.