Mechanical modes

$$\frac{\partial}{\partial r_j} T_{ij}(\boldsymbol{r},t) = \rho_0(\boldsymbol{r}) \frac{\partial^2 U_i}{\partial t^2} - f_i(\boldsymbol{r},t)$$

Stress tensor — acceleration — External force

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$$T_{ij} = c_{ijkl} S_{kl} + \eta_{ijkl} \frac{\partial S_{kl}}{\partial t}$$

Stiffness (Hooke's law) — Friction