

I.Goda, J.-F. Ganghoffer, S.Czarnecki, R.Czubacki, P.Wawruch, Topology optimization of bone using cubic material design and evolutionary methods based on internal remodeling, Mechanics Research Communications, 95(2019), pp. 52-60

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Highlights

- Optimal bone tissue mechanical properties and anisotropy directions are computed based on Cubic Material Design for the minimum compliance optimization problem considering cubic symmetry.
- The evolution in time of internal bone density and anisotropic properties are computed based on evolutionary algorithms relying on internal remodeling simulations.
- Simulation results indicate that the proposed approaches reasonably mimic the major geometrical and material features of natural bone.