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UNIVERSITY OF CALIFORNIA

Tongge Wu
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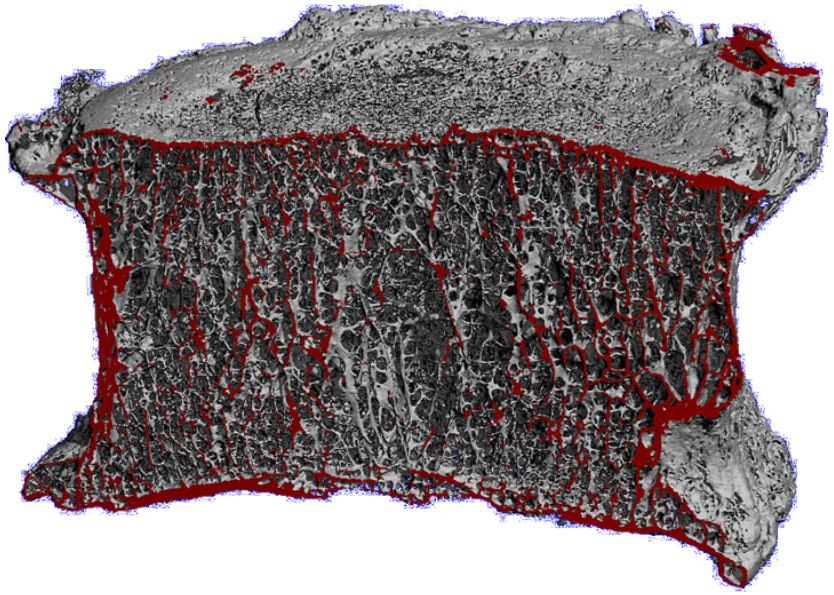
BERKELEY BioMechanics

- Bone Fracture
- Finite Element Method
- Degree of Freedom (10M~1B)
- TACC – Stampede2
- Customized Customized Solver
- Parallel post-processing



Micro-CT reconstruction of human vertebral body[1]

$$\int_R \xi \cdot \rho \mathbf{a} \mathrm{d}v + \int_R \frac{\partial \xi}{\partial \mathbf{x}} \cdot \mathbf{T} \mathrm{d}v = \int_R \xi \cdot \rho \mathbf{b} \mathrm{d}v + \int_\Gamma \xi \cdot \mathbf{t} \mathrm{d}a$$

$$A\mathbf{u} = \mathbf{b} \quad \text{or} \quad R(\mathbf{u}) = \mathbf{0}$$

[1] Adopted from: Scanco Medical.

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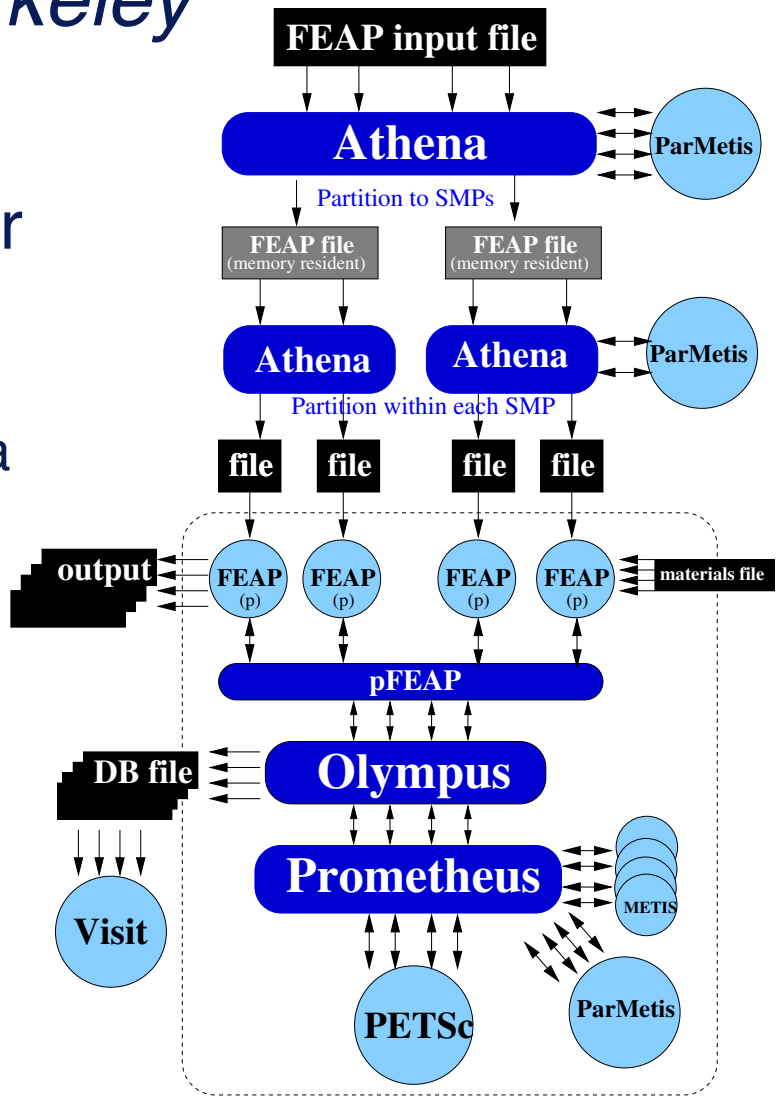
- Maintain the “fragile” solver
- Post-processing
  - Matlab / Python / R / Julia
- Visualization
  - Paraview / VisIt



Parallel finite element application[1]

[1] M. Adams+ 2004, SC2004.