

# PRISMS-Plasticity

## Continuum Elastoplasticity

### Bending example

Domain:  $10 \times 1 \times 1$

Mesh:  $80 \times 8 \times 8$ .

Boundary conditions:  $\mathbf{u} = 0$  at  $x_1 = 0$ ;  $\mathbf{u} = -0.1\mathbf{e}_3$  at  $x_1 = 10$ .

Parameter	Value
Lamé constant $\lambda$	100.6582e9
Lamé constant $\mu$	45.6473e9
Yield stress	33.014025e6
Linear hardening coefficient	2.0259e9
Basis function order	1
Quadrature order	2
Pseudo-time steps	100

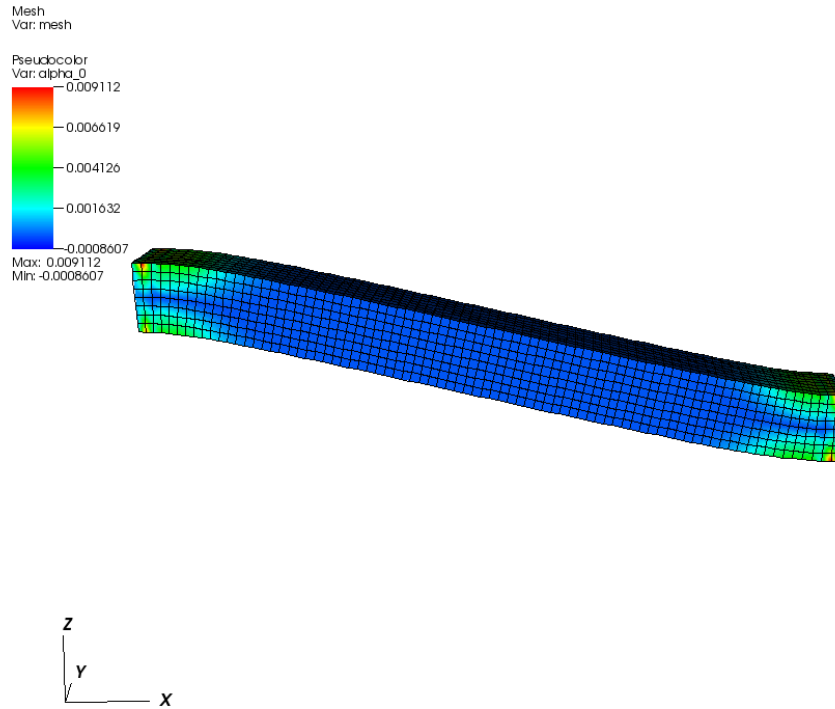


Figure 1: Plot of equivalent plastic strain,  $\alpha$ . Deformation scaled by  $20\times$ .

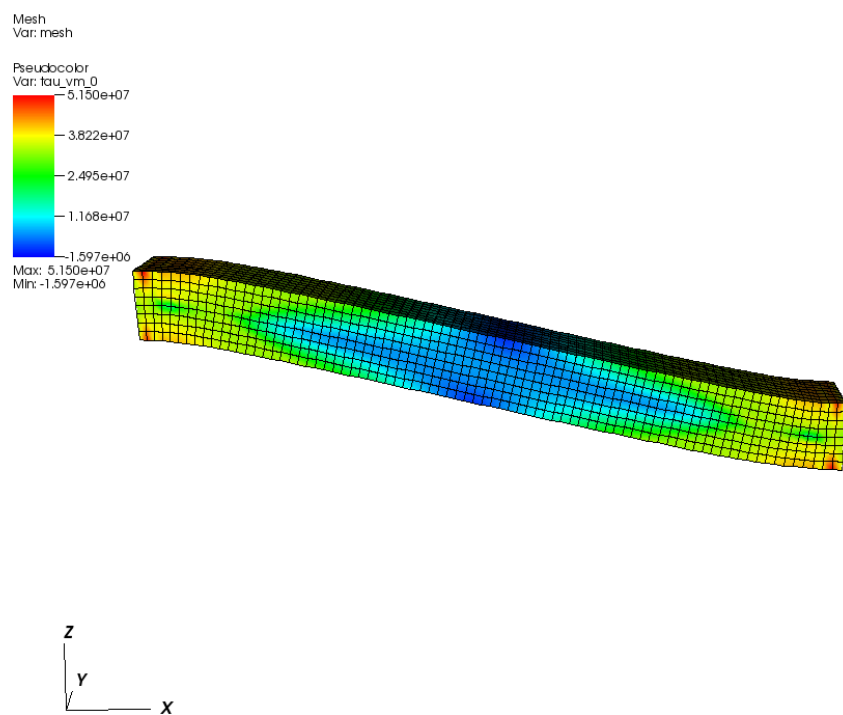


Figure 2: Plot of von Mises stress. Deformation scaled by  $20\times$ .

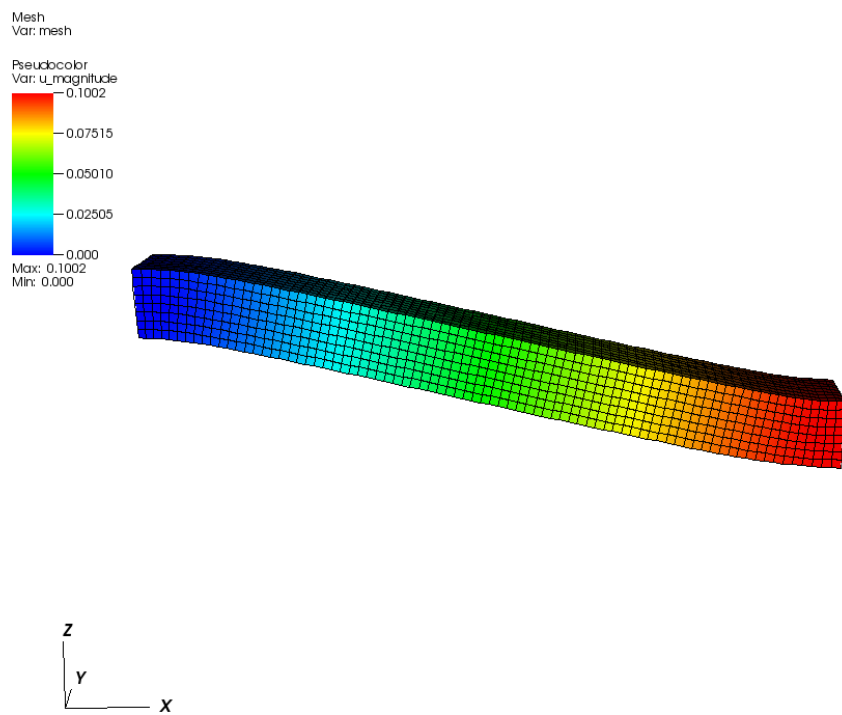


Figure 3: Plot of displacement magnitude. Deformation scaled by  $20\times$ .