Fractional-order Visco-Elasto-Plasticity

Strain decomposition:
\[ \varepsilon = \varepsilon^{ve} + \varepsilon^{vp} \]

Constitutive relation:
\[ \sigma = E \frac{C}{0} D_t^{\beta} (\varepsilon - \varepsilon^{vp}) \]

Yield condition:
\[ f(\sigma, \alpha) = |\sigma| - \left[ \sigma_Y + K \alpha + K_f \frac{C}{0} D_t^{\beta K_f} (\alpha) \right] \]

Application for trusses:

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Diagram of a truss with dimensions and forces applied.