

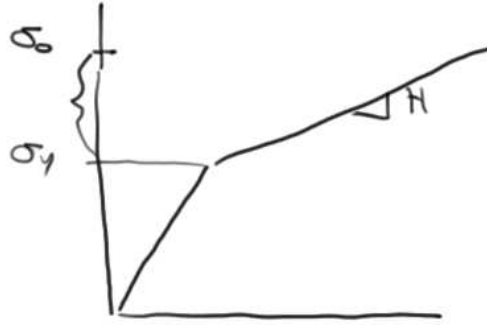
$$Y(\varepsilon^p, \dot{\varepsilon}^p, T)$$

$$f(p, J_2) = \sqrt{3J_2} + \beta p - Y(\dot{\varepsilon}^p)$$

$$\dot{\varepsilon} = \lambda \frac{\frac{\partial f}{\partial \sigma_{ij}}}{\left\| \frac{\partial f}{\partial \sigma_{ij}} \right\|}$$

$$= \lambda Q_{ij}$$

$$\frac{\partial f}{\partial \sigma_{ij}} = \sqrt{3} S_{ij} - \frac{1}{3} \delta_{ij} \beta$$



$$\frac{d\sigma_0}{d\varepsilon^p} = H$$

$$\int d\sigma_0 = \int H d\varepsilon^p$$

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$$\sqrt{3} \bar{\sigma}_2 = -\beta p + k$$

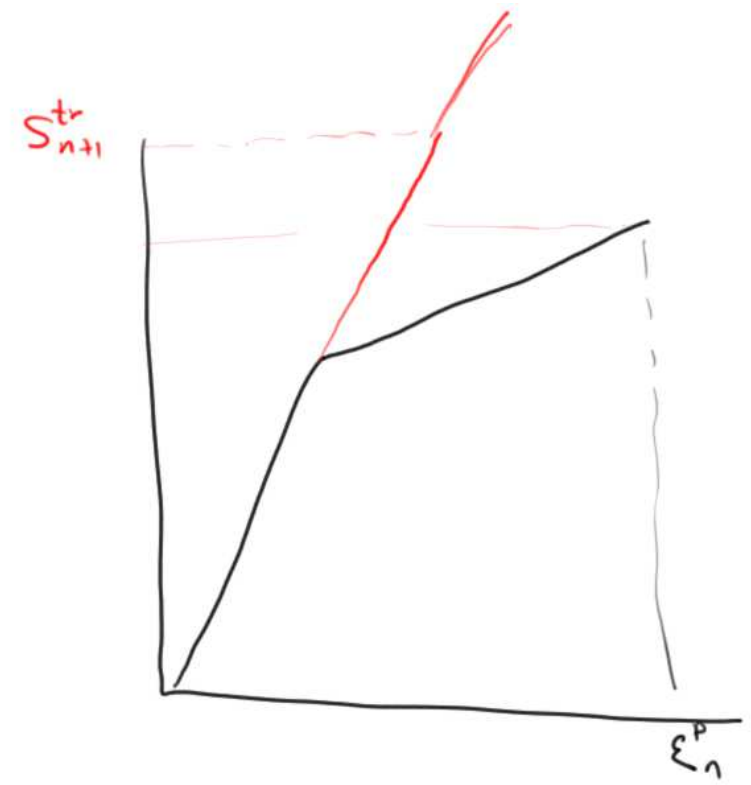
$$\bar{\sigma}_2 = \frac{1}{3} (-\beta p + k)^2$$

$$S_{ij} = \frac{2}{3} (-\beta p + k) \frac{\partial(-\beta p)}{\partial \sigma_{ij}}$$

$$= -\frac{2}{3} (-\beta p + k) \left( \frac{1}{3} S_{ij} \beta \right)$$

$$\left\| \frac{\partial f}{\partial \sigma_{ij}} \right\| = \sqrt{S_{ij} S_{ij}}$$

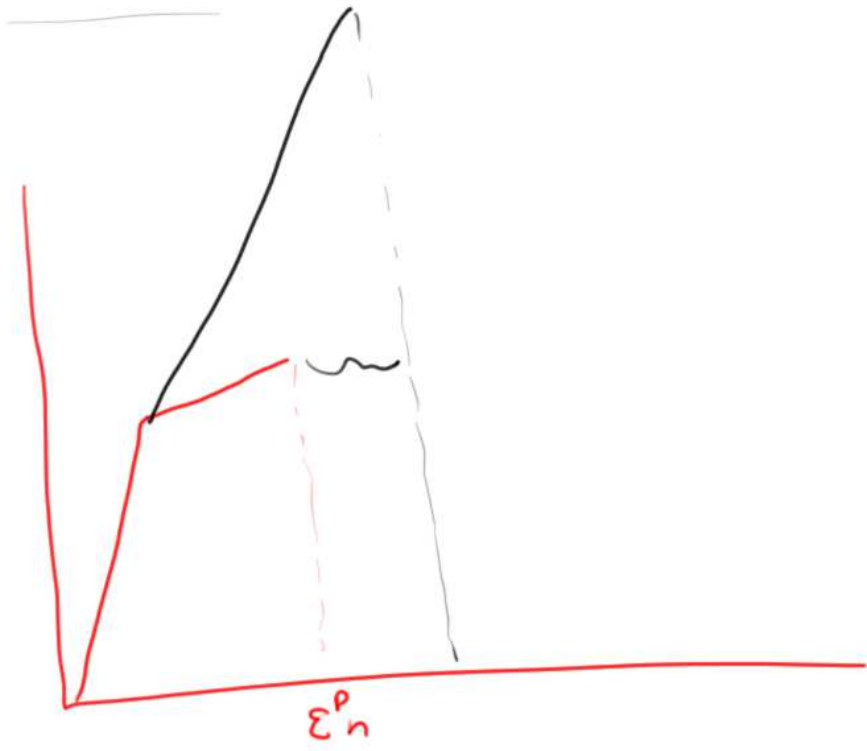
$$Q_{ij} = \frac{\frac{\partial f}{\partial \sigma_{ij}}}{\left\| \frac{\partial f}{\partial \sigma_{ij}} \right\|}$$



$$\epsilon_{n+1}^p = \epsilon_n + \sqrt{\frac{2}{3}} \Delta \lambda$$

$$Y(\epsilon_{n+1}^p)$$

$\sigma^{\text{tr}}$



$\dot{\lambda} \leq 0$