

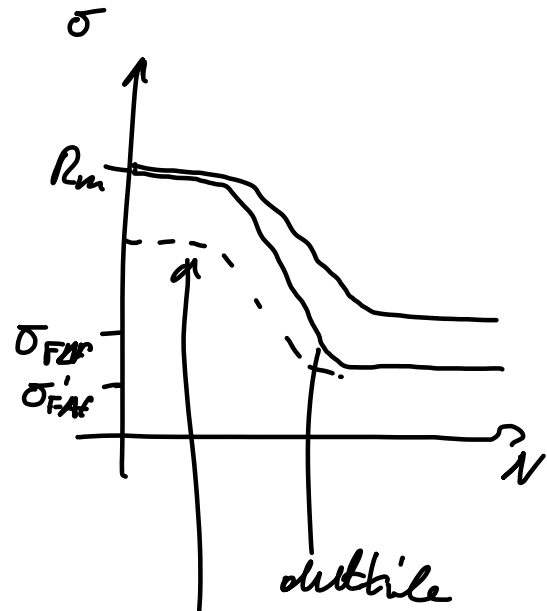
$b_3 \rightarrow$ rugosità

$b_2 \rightarrow$ dimensione

$k_f \rightarrow$ intaglio

σ_{FAF}

$$\sigma'_{FAF} = \frac{\sigma_{FAF} b_2 b_3}{k_f}$$



fragile, perché l'intaglio
cambia anche R_m

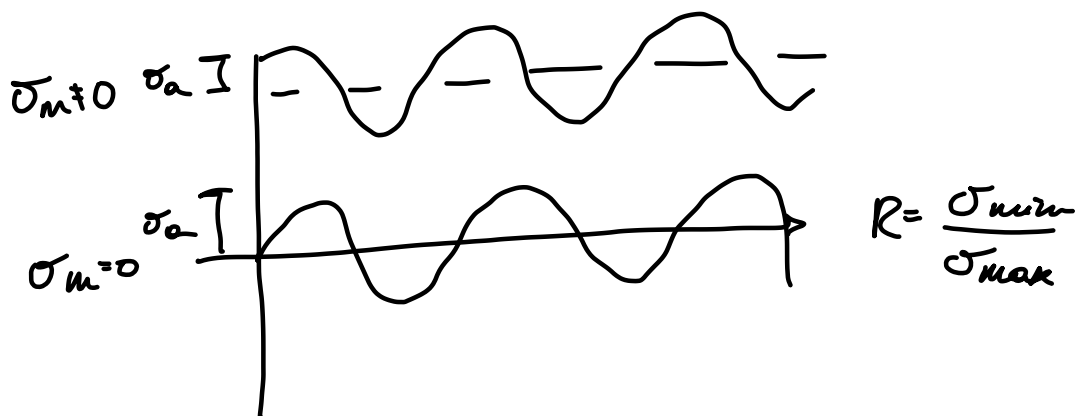
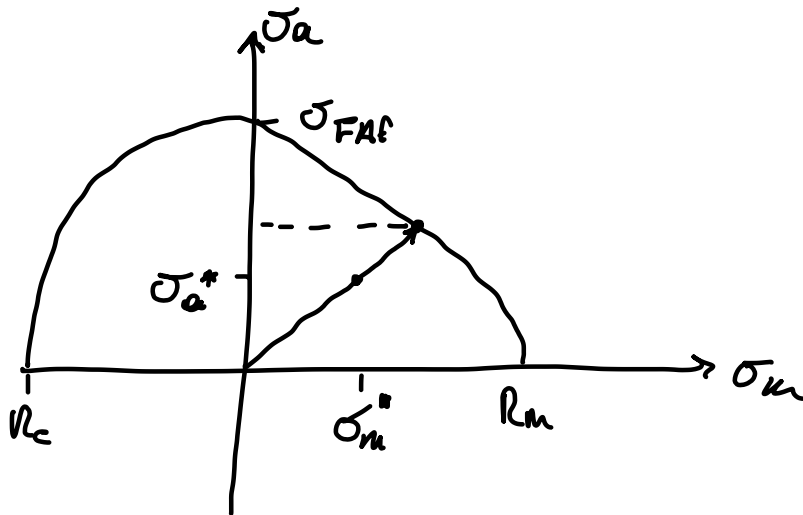
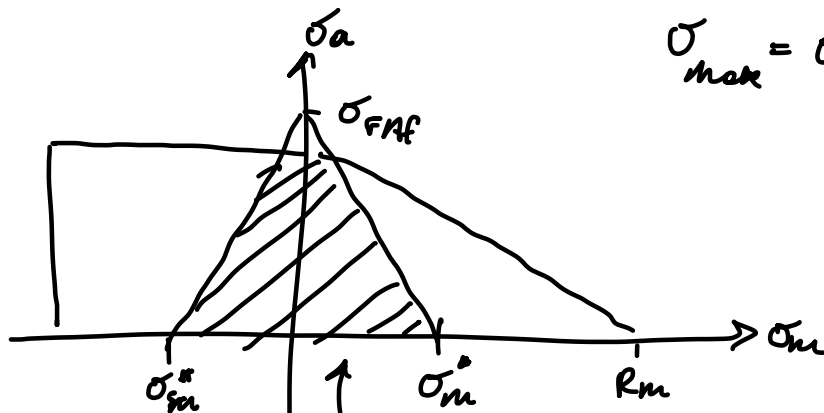


Diagramma di Haigh

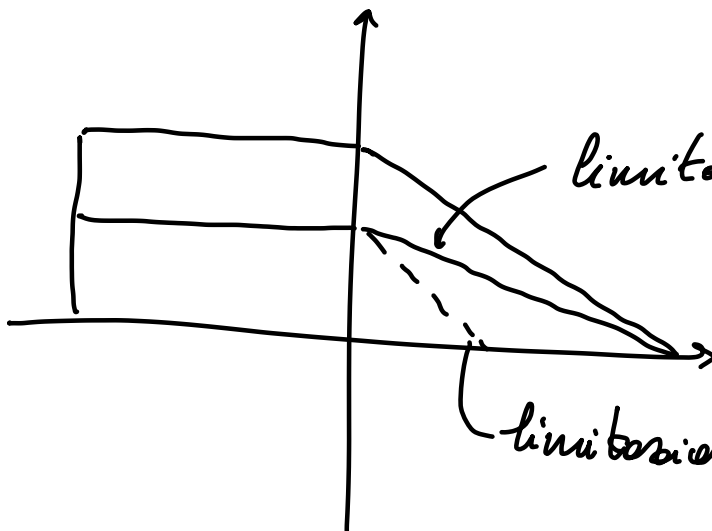


Semplificato



$$\sigma_{max} = \sigma_m + \sigma_a = \sigma_{su}$$

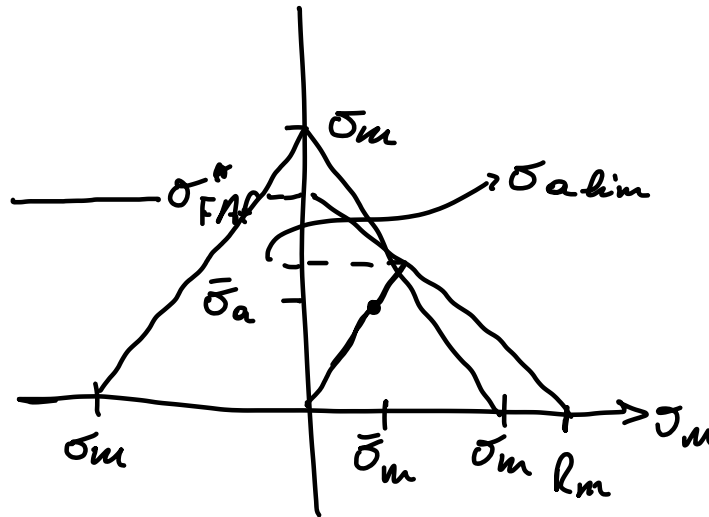
Area di sistemi sicuri



limitazione di Haigh per duttili

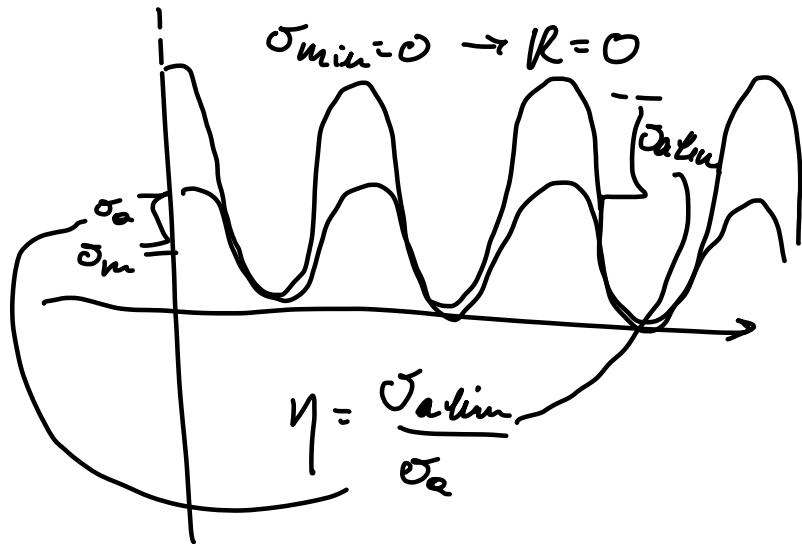
limitazione di Haigh per fragili

Cone utilisation Haigh



$$\eta = \frac{\sigma_{a,lim}}{\sigma_a}$$

$$R = \frac{\sigma_{min}}{\sigma_{max}}$$



$$\sigma_a = \frac{\sigma'_{FAT}}{\eta}$$

$$\eta = \frac{\sigma_{a,lim}}{\sigma_a}$$

Fatigue $\sigma \sigma_m = 0$

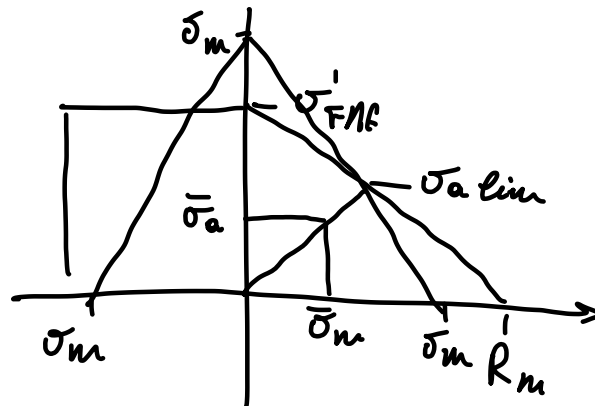
$$\begin{matrix} b_2 & b_3 & k_f \\ (&) & / \\ \rightarrow \sigma'_{FAT} \end{matrix}$$

$$\eta = \frac{\sigma'_{FAT}}{\sigma_a}$$

Fatiga a $\sigma_m \neq 0$

$-b_2, b_3, k_f$

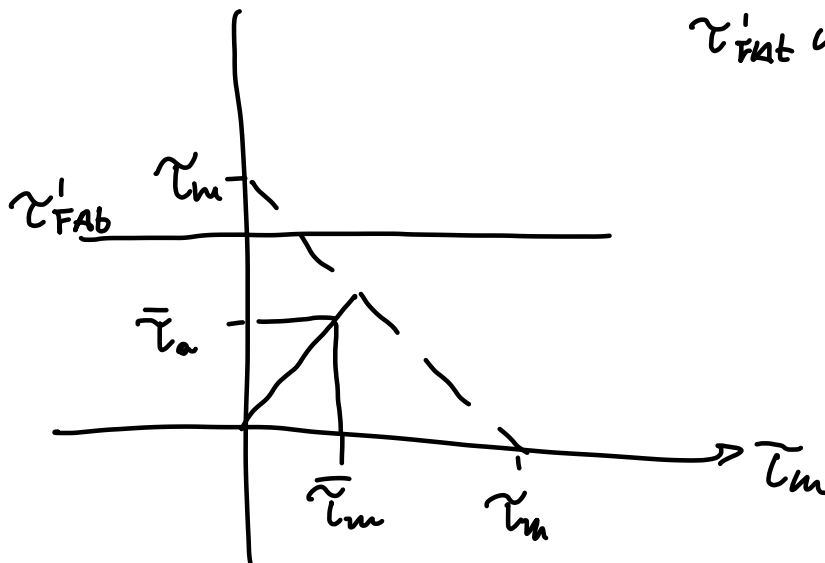
$-\sigma'_{FME}$



$$\eta = \frac{\sigma_{a \text{ lim}}}{\sigma_a}$$

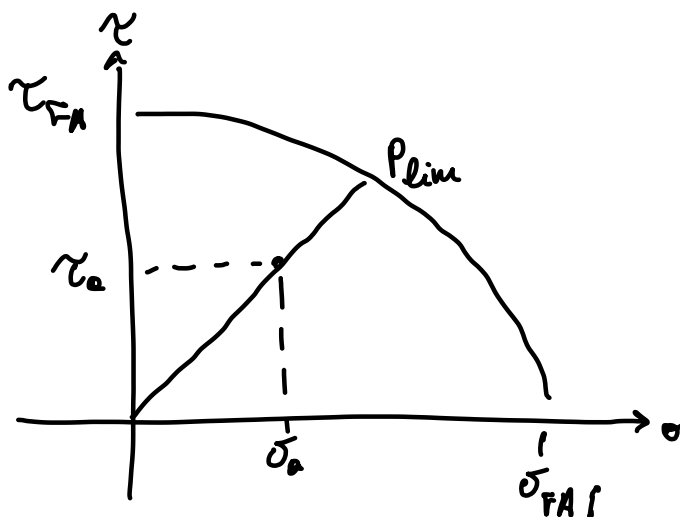
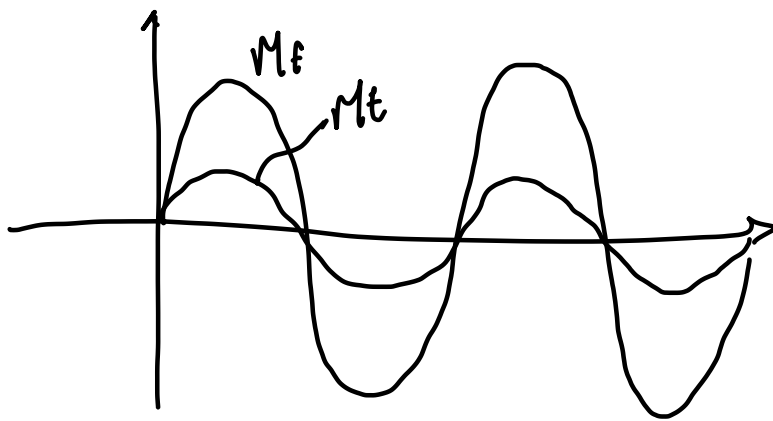
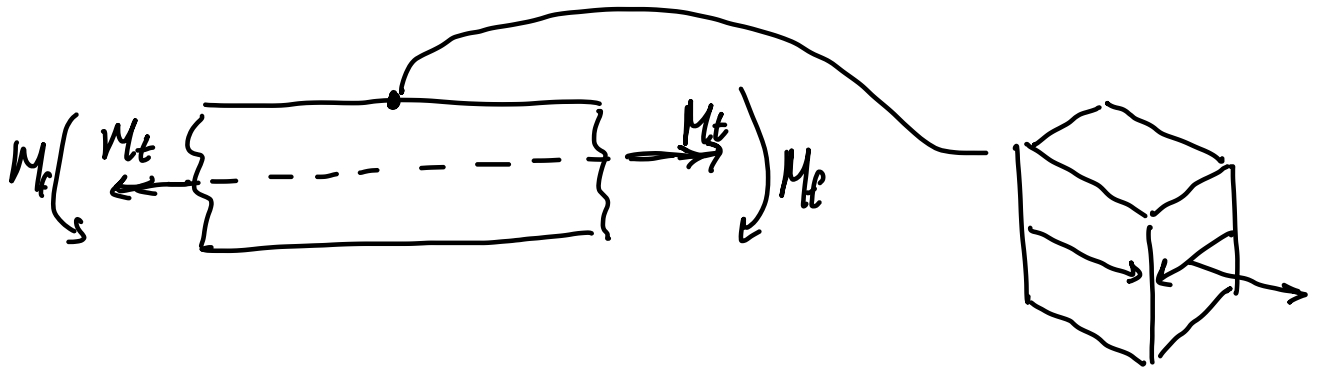
In torques

τ'_{FME} var cambia con



Fatica Multiasiale

Criterio di Gough-Pollard - Solo flessione e torsione



$$\frac{\sigma_a^2}{\sigma_{FAI}^2} + \frac{\tau_a^2}{\tau_{FAI}^2} = 1$$

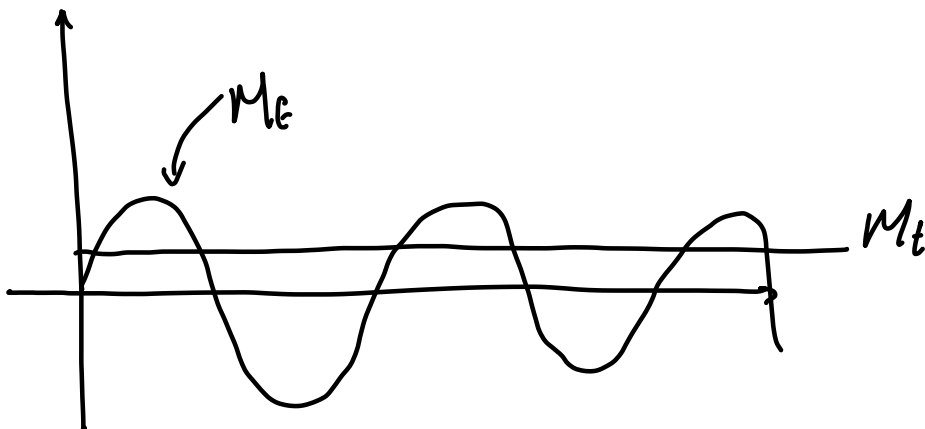
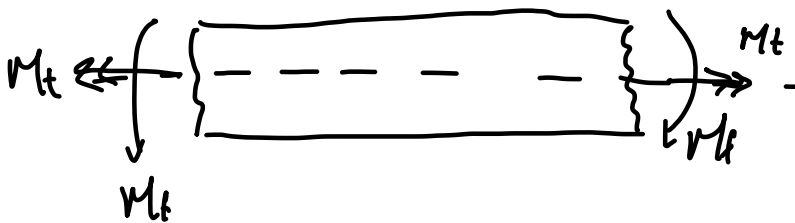
$$\sqrt{\sigma_a^2 \left(\frac{\sigma_{FAI}^2}{\sigma_{FAI}^2} \right) + \tau_a^2 \left(\frac{\sigma_{FAI}^2}{\tau_{FAI}^2} \right)} = \sigma_{FAI}$$

$$\sqrt{\sigma_a^2 + \left(\frac{\sigma_{FAF}}{\tau_{FAt}}\right)^2 \cdot \tau_a^2} \leq \sigma_{FAF}$$

Componenti

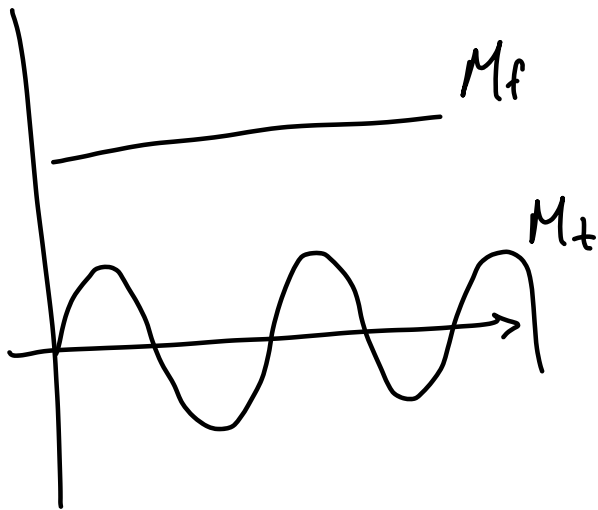
$b_2 \ b_3 \ k_f$

$$\underbrace{\sqrt{\sigma_a^2 + \tau_a \left(\frac{\sigma_{FAF}'^2}{\tau_{FAt}'^2} \right)}}_{\sigma^*} \leq \frac{\sigma_{FAF}'^2}{\eta}$$



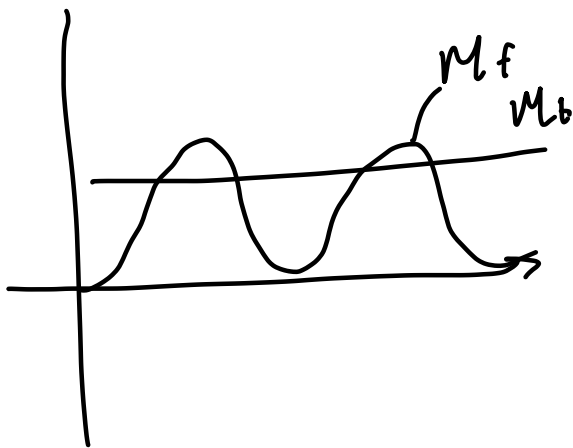
M_t alternato $\rightarrow \sigma_{lim} = \sigma_{FAF}'$

M_t cost $\rightarrow \tau_{lim} = \tau_{sn}$



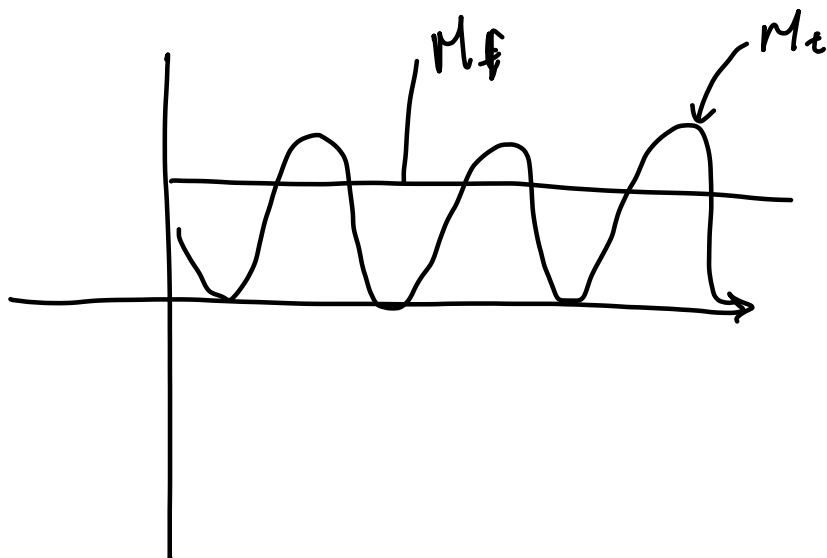
$$\sigma_{lin} = \sigma_{su}$$

$$\tau_{lin} = \tau'_{fab}$$



$$\sigma_{lin} = \sigma_{FAF}$$

$$\tau_{lin} = \tau_{su}$$



$$\sigma_{lin} = \sigma_{su}$$

$$\tau_{lin} = \tau'_{FA}$$