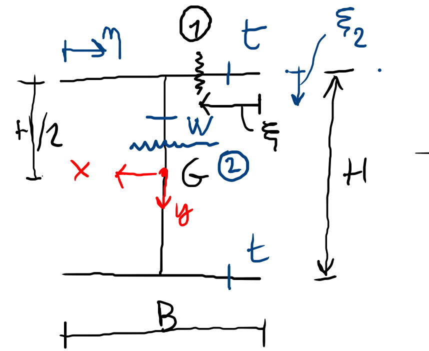
... TRATTAZIONE APPROSSIMATA DEL PR. TAGLIO-FLESSIONE

30/11/22



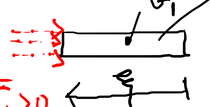
$T = T_y$

J_x NOTO

↓T

$\xi \in [0, B/2[$

① $\bar\tau_{zx}(\xi)$?



$\bar\tau_{zx} > 0$

$$\bar\tau_{zx}(\xi) = \frac{T_y\, S_x^*(\xi)}{J_x\, t}$$

COORD G_1

$$S_x^*(\xi) = t\xi\, y_{G_1}$$

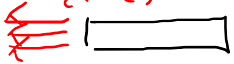
$$= t\xi\left(-\frac{H}{2}\right)$$

cost

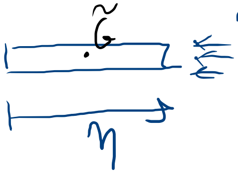
$$\bar\tau_{zx}(\xi) = \underbrace{\frac{T_y}{J_x t}\, t\left(-\frac{H}{2}\right)}_{A}\xi = -A\xi$$

$\bar\tau$ SONO USCENTI DALL'AREA A^*

$\bar\tau_{zx}(\xi)$



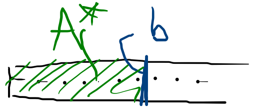
Se Studio

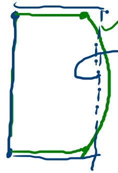


$\bar\tau_{zx}(\eta)$ OTTENGO

UNA FUNZIONE UGUALE A $\bar\tau_{zx}(\xi)$

$$S_x^*(\eta) = t\eta\, y_{\tilde G} = t\xi\, y_{G_1} \Rightarrow \bar\tau_{zx}(\eta) = \bar\tau_{zx}(\xi)\big|_{\xi=\eta}$$



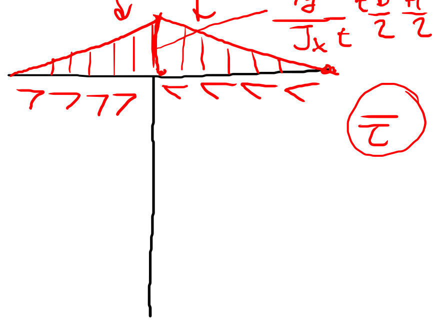


τ vere

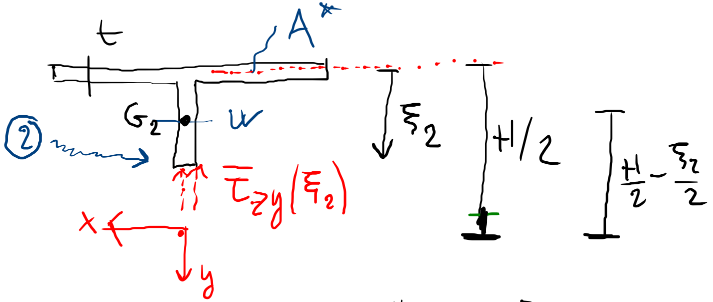
$\bar\tau$: JOURAWSKI

$$\bar\tau = \frac{T_y\, S_x^*}{J_x\, b}$$

DIAG SYM



$\bar\tau$



$$S_x^*(H) = -Bt\frac{H}{2} - wH\left(\frac{H}{2}-\frac{H}{2}\right)$$
$$= -Bt\frac{H}{2}$$

w?

ANIMA ≐ WEB

$\xi_2 \in]0, H[$

② $\tau_{zy}(\xi_2)$?

$$\tau_{zy}(\xi_2) = \frac{T_y}{J_x\, w} S_x^*(\xi_2) < 0$$

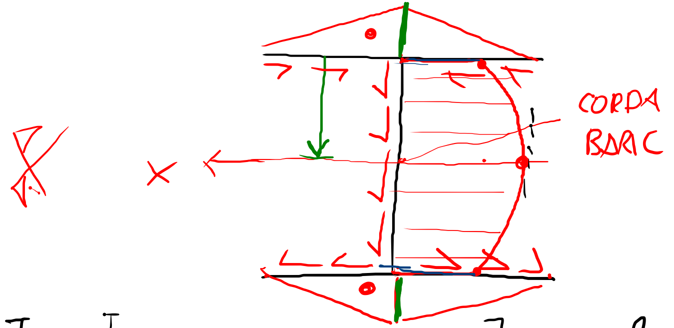
$$-\left(\frac{H}{2}-\frac{\xi_2}{2}\right)$$

$$S_x^*(\xi_2) = Bt\left(-\frac{H}{2}\right) + w\,\xi_2\, y_{G_2}$$

$$= \underbrace{-Bt\frac{H}{2}}_{\text{cost}} - \underbrace{w\,\xi_2\left(\frac{H}{2}-\frac{\xi_2}{2}\right)}_{f(\xi_2^2)} \Rightarrow \text{PARABOLA}$$

$$S_x^*(0) = -Bt\frac{H}{2} \; ; \; S_x^*(H) = -Bt\frac{H}{2}$$

$$\overset{<0}{\tau_{zy}(0)} \doteq \overset{<0}{\tau_{zy}(H)}$$



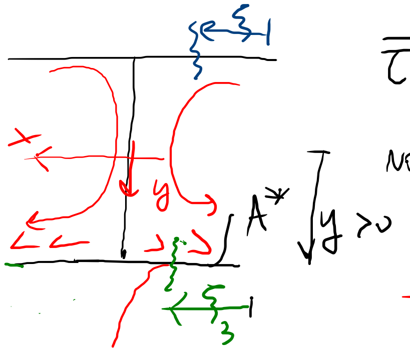
$$\tau'(\xi_2) = \frac{T_y}{J_x w}\left[-w\left(\frac{H}{2}-\frac{\xi_2}{2}\right) - w\,\xi_2\left(-\frac{1}{2}\right)\right] = 0 \; ?$$

$$-\left(\frac{H}{2}-\frac{\xi_2}{2}\right) + \frac{\xi_2}{2} = 0$$

$$-H = -2\xi_2$$

$$\boxed{\xi_2 = +\frac{H}{2}}$$ CORDA BARICENTR.

Se studio le ali "inferiori" (attraverso delle ascisse ξ_3, ξ_4), ottengo un diagr. delle $\bar{\tau}_{zx}$ simile a quello delle ali "superiori"

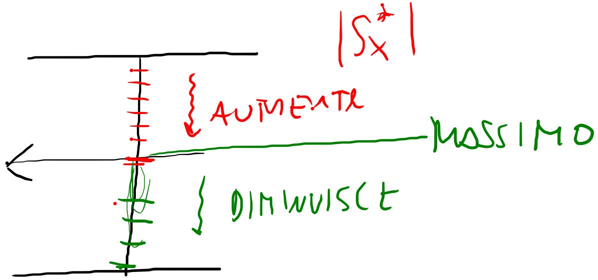


$$\bar{\tau}_{zx}(\xi_3) = -\bar{\tau}_{zx}(\xi)$$

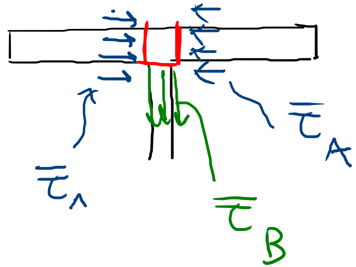
NOTO CHE $S_x^*(\xi_3) > 0$ (mentre $S_x^*(\xi) < 0$) $|S_x^*(\xi_3)| = |S_x^*(\xi)|$

$\bar{\tau}_{zx}(\xi_3) > 0$

$\bar{\tau}$ "ENTRANO" IN A^*



Perchè $|\tau_{MAX}|$ si OTTIENE SULLA CORDA BARICENTRICA? PERCHÈ LÌ HO UN MASSIMO $|S_x^*(\xi_2)|$



FLUSSO DELLE $\bar{\tau}$: PRODOTTO DI $\bar{\tau}$ · SPESSORE DELLA CORDA

$$\bar{\tau}_A = \frac{T_y}{J_x t} \, t \, \frac{BH}{4}$$

$$\bar{\tau}_B = \frac{T_y}{J_x w} \, t B \frac{H}{2}$$

$$\left(\underbrace{\bar{\tau} b}_{\text{FLUSSO}} = \frac{T_y}{J_x} S_x^* \right)$$

$$[\bar{\tau} b] = \left[\frac{F}{L} \right]$$

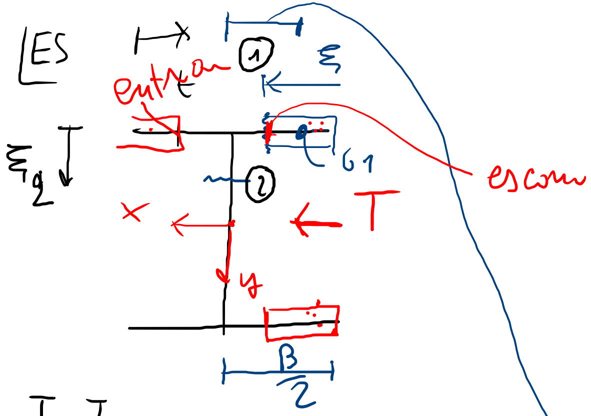
IN UN NODO DI PROFILO SOTTILE, IL FLUSSO ENTRANTE EGUAGLIA IL FLUSSO USCENTE.

$$\bar{\tau}_A t + \bar{\tau}_A t = \bar{\tau}_B w$$

$$\frac{tBH}{4} + \frac{tBH}{4} = \frac{tBH}{2}$$

OK

ES



$$T = T_x$$

$$\tau = \frac{T_x}{J_y\, b} S_y^*$$

$$\tau_{zx}(\xi) = \frac{T_x}{J_y\, t}\, \xi\, t \underbrace{\left(-\left(\frac{B}{2} - \frac{\xi}{2}\right)\right)}_{x_{G_1}} = f(\xi^2) < 0$$

τ "USCENTI"

$$\tau_{zy}(\xi_1) = \frac{T_x}{J_y\, w} \underbrace{S_y^*(\xi_2)}_{? = 0} = 0$$

$$\tau_{max} = \frac{T_x}{J_y\, t} \frac{B}{2} t \frac{B}{4} = \frac{T_x}{J_y} \frac{B^2}{8}$$