momenti d'inerzia

$$\overline{EJ}_{xx} = \iint_a E(x,y)\, y^2\, da \quad (\cancel{E}\cdot J_{xx})$$

$$\overline{EJ}_{xy} = \iint_a E(x,y)\, xy\, da = 0$$ se assi x,y principali d'inerzia (es. se x o y è un asse di simmetria)

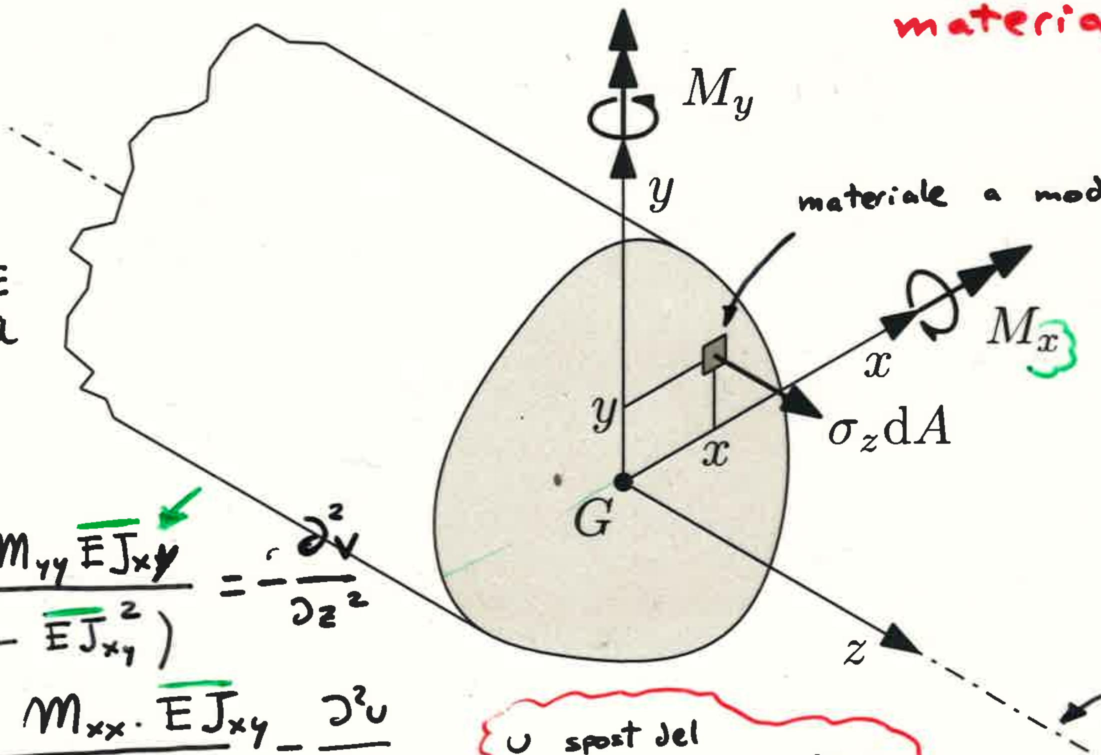
$$\overline{EJ}_{yy} = \iint_a E(x,y)\, x^2\, \boxed{da}$$

oppure $\bar{E}_{yy} \cdot J_{yy}$ ....

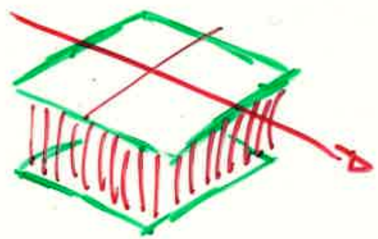
Barber, J.R. intermediate mechanics of materials

se materiale omogeneo

$$\bar{E}_{xx} = \bar{E}_{yy} = \bar{E}_{xy} = E(x,y) = E \quad \forall x,y \in a$$



materiale a modulo elastico $E(x,y)$



curvature:

$$\frac{1}{R_x} = \frac{M_{xx}\,\overline{EJ}_{yy} + M_{yy}\,\overline{EJ}_{xy}}{\left(\overline{EJ}_{xx}\,\overline{EJ}_{yy} - \overline{EJ}_{xy}^2\right)} = -\frac{\partial^2 v}{\partial z^2}$$

$$\frac{1}{R_y} = \frac{M_{yy}\,\overline{EJ}_{xx} + M_{xx}\cdot\overline{EJ}_{xy}}{\left(\overline{EJ}_{xx}\,\overline{EJ}_{yy} - \overline{EJ}_{xy}^2\right)} = \frac{\partial^2 u}{\partial z^2}$$

u spost del baricentro in dir x

v spost. del baricentro in direz. y

assi LOCALI x, y, z con z localmente tangente ad asse baricentrico

deformazione assiale - altre def.

$$\varepsilon_z = \frac{y}{R_x} - \frac{x}{R_y}, \quad \varepsilon_x = \varepsilon_y = -\nu\,\varepsilon_z$$

$$\gamma_{xy} = \gamma_{yz} = \gamma_{zx} = \varnothing$$