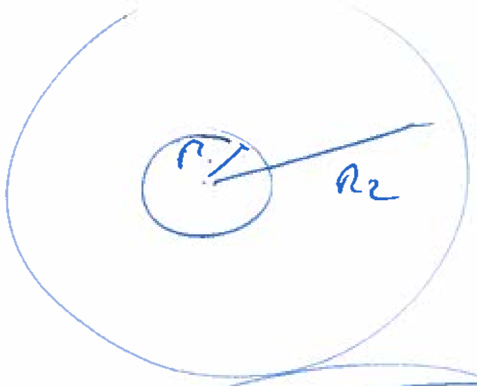
Cowan type Lamè problem



$$\eta = \frac{R_1}{R_2}$$

choose $R_1 = 1$ so ~~we can~~ do $R_2 \to \infty$; $\eta \to 0$

Re below for $f = Re$

but Cowan seems to base it on R_2: $\rho \in (\eta, 1)$ in his eqn (1).

"problem in box"

$r = \eta^{-1}$

$r = 1$

$\underline{u} = 0 \quad \omega = \frac{\partial \omega}{\partial n} = 0$

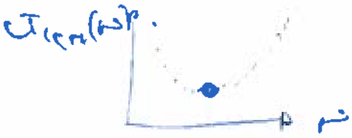
$\underline{u} = -U_1 \underline{e_r} \quad \omega = \frac{\partial \omega}{\partial n} = 0$

BUT NOTE THAT COWAN ~~EQ~~ ASSUMES $U_2 \neq 0$; $U_2 > 0$!!

$$\sigma_1 = \frac{\sigma_1^* \mathcal{L}}{h^2}$$

EVP for box

$\omega = \omega(\sigma_1)$ & eqns in box are free of h!



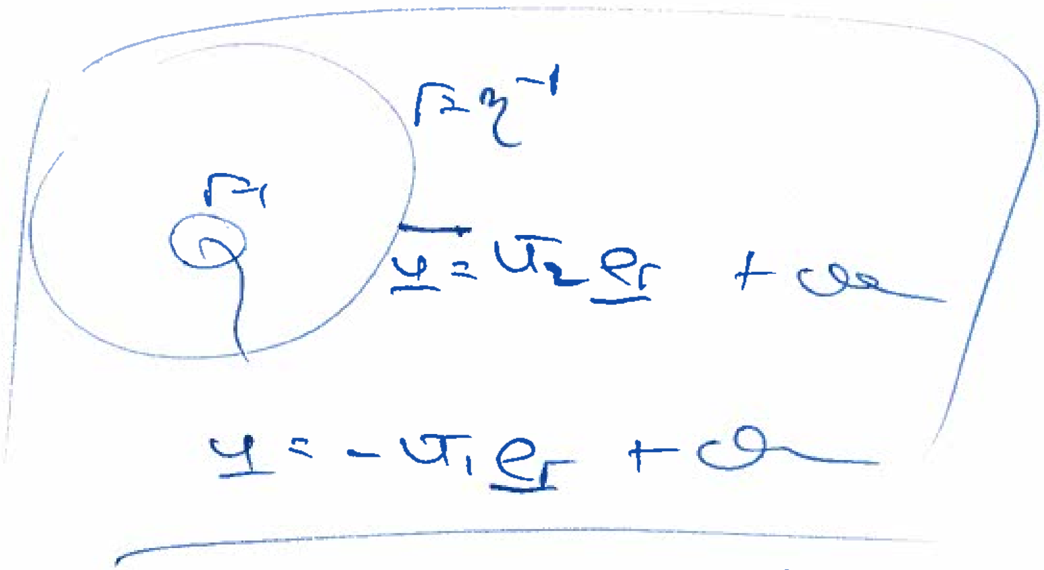
$\Longrightarrow$ universal ω

& wrinkling when $\sigma_1^* = \frac{h^2}{\mathcal{L}} \sigma_{1crit}$

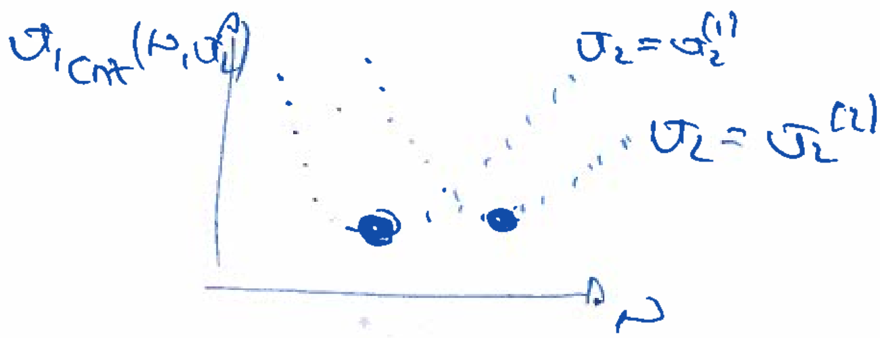
wrinkling occurs earlier for smaller h.

what if we have pre-stress as in Coroni; $\sigma_2^* \neq 0$

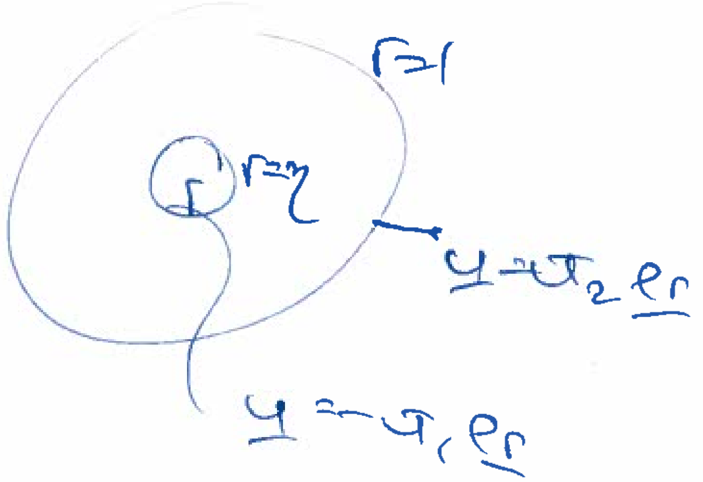
Box:



now EVP contains $\sigma_2 = \dfrac{\sigma_2^* L}{n^2}$ as param.



ACT: choose $R_2 = R_{outer} = f$ $\boxed{4}$



EVP contains $u_2 = \dfrac{u_2^* f}{h^2} = \dfrac{u_2^* R_{outer}}{h^2}$

$\Rightarrow N_a = N_a(u_2) = N\left(\dfrac{u_2^* R_{outer}}{h^2}\right)$

consistent with Cannon & Donnelly ~~bold~~ but they show what functional dependence is, too.

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