UNCUYO
UNIVERSIDAD NACIONAL DE CUYO

FACULTAD DE INGENIERÍA

“VISCOELASTICIDAD:
FORMAS INTEGRALES DE LAS ECUACIONES CONSTITUTIVAS”

MATERIALES

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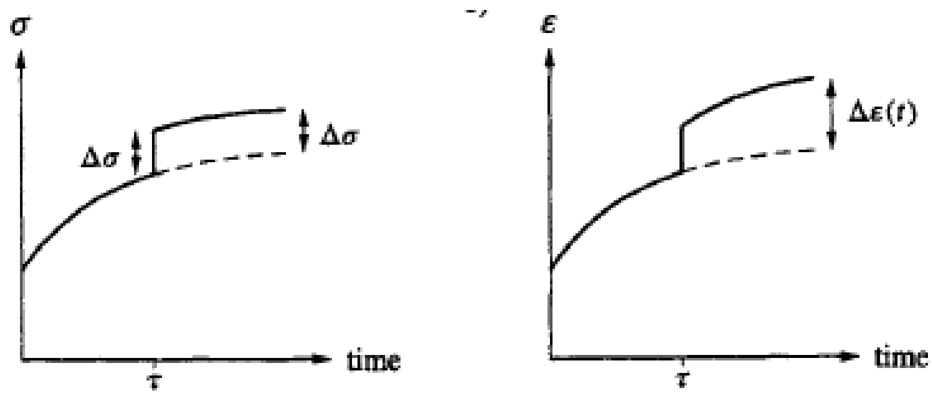


$$\Delta\varepsilon(t) = J(t)\Delta\sigma$$

$$\Delta\varepsilon(t) = J(t-\tau)\Delta\sigma$$

$$\varepsilon(t) = \int_{-\infty}^{t} J(t-\tau)\,d\sigma(\tau)$$

$$\sigma(t) = \begin{cases} 0 & \text{when} \quad t < 0 \\ \sigma_0 + \sigma_1(t)\,; \quad \sigma_1(0) = 0 & \text{when} \quad t \geq 0 \end{cases}$$

$$\varepsilon(t) = \int_{-\infty}^{0^-} J(t-\tau)d\sigma(\tau) + \int_{0^-}^{0^+} J(t-\tau)d\sigma(\tau) + \int_{0^+}^{t} J(t-\tau)d\sigma(\tau)$$

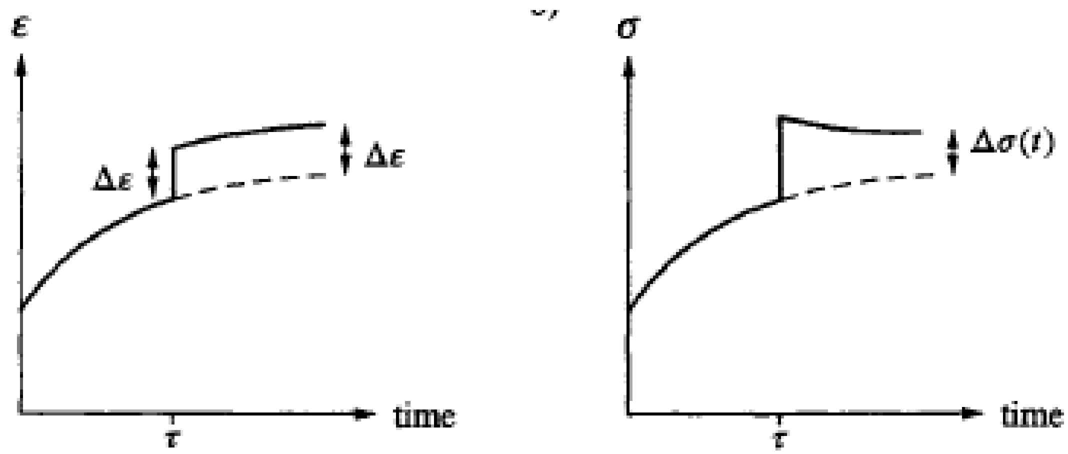
$$= 0 + J(t)\sigma_0 + \int_{0^+}^{t} J(t-\tau)d\sigma(\tau)$$

$$\varepsilon(t) = J(t)\sigma_0 + \int_{0^+}^{t} J(t-\tau)d\sigma(\tau)$$

$$\sigma = \sigma(\tau)$$

$$d\sigma(\tau) = \tfrac{d\sigma(\tau)}{d\tau}d\tau$$

$$\varepsilon(t) = \int_{-\infty}^{t} J(t-\tau)\frac{d\sigma(\tau)}{d\tau}d\tau$$



$$\Delta\sigma(t) = G(t-\tau)\Delta\varepsilon$$

$$\sigma(t) = \int_{-\infty}^{t} G(t-\tau)\, d\varepsilon(\tau)$$

$$\sigma(\tau) = \int_{-\infty}^{t} G(t-\tau)\frac{d\varepsilon(\tau)}{d\tau}\, d\tau$$