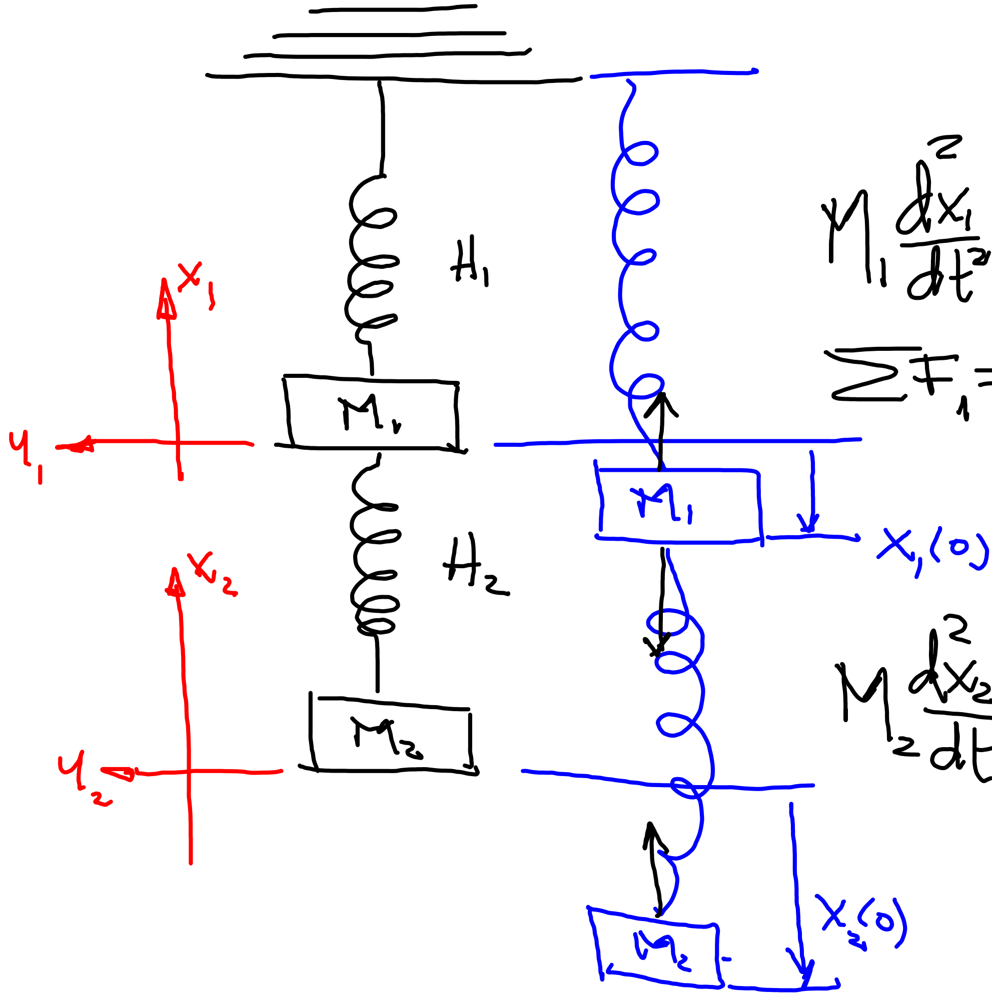

$$M_1 \frac{d^2x_1}{dt^2} = \sum F_1$$

$$\sum F_1 = -H_1 x_1 + H_2 (x_2 - x_1)$$

$$M_2 \frac{d^2x_2}{dt^2} = -H_2 (x_2 - x_1)$$

$$M_1 \frac{d^2 x_1}{dt^2} = -H_1 x_1 + H_2 (x_2 - x_1)$$

$$M_2 \frac{d^2 x_2}{dt^2} = -H_2 (x_2 - x_1)$$

$$\frac{dx_1}{dt} = x_3$$

$$\frac{dx_2}{dt} = x_4$$

$$\frac{dx_3}{dt} = -\left(\frac{H_1 + H_2}{M_1}\right) x_1 + \frac{H_2}{M_1} x_2$$

$$\frac{dx_4}{dt} = \frac{H_2}{M_2} x_1 - \frac{H_2}{M_2} x_2$$

$$\frac{d\bar{x}}{dt} = A\bar{x}$$

$$\frac{d}{dt}\begin{bmatrix} x_1(t) \\ x_2(t) \\ x_3(t) \\ x_4(t) \end{bmatrix} = \begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \\ -\left(\frac{H_1+H_2}{M_1}\right) & \frac{H_2}{M_1} & 0 & 0 \\ \frac{H_2}{M_2} & -\frac{H_2}{M_2} & 0 & 0 \end{bmatrix} \begin{bmatrix} x_1(t) \\ x_2(t) \\ x_3(t) \\ x_4(t) \end{bmatrix}$$

SOCIEDAD DE EXALUMNOS DE FACULTAD DE INGENIERÍA. A.C.

"Apoyar moral y materialmen a la FI, UNAM"

Sistemas

Sacudida $s(t) = \frac{d^3 y}{dt^3}$

$s < 1.6 \, \frac{ft}{s^2} / s$

$\frac{d}{dt}(a).$

Condiciones iniciales

$x(0)$
$x'(0)$
$x''(0)$

$t = 0$

$x(10)$
$x'(10)$
$x''(10)$

$t = 10$

t_f

Cond. frontera.

torre Mayor

$y(t_f) = 100$
$y'(t_f) = 0$
$y''(t_f) = 0$

$y(0) = 0$
$y'(0) = 0$
$y''(0) = 0$

$$\frac{d\bar{x}}{dt} = A \cdot \bar{x} \qquad \text{EDOL}(n)\ \text{cc H.}$$

$$\bar{x} = \left[e^{At} \right] \bar{x}(0)$$

$$\boxed{\frac{d}{dt} e^{At} = A e^{At}}$$

$$e^{mt}$$

$$\frac{d}{dt} e^{mt} = m e^{mt}$$

$$e^{t} = 1 + \frac{t}{1!} + \frac{t^2}{2!} + \frac{t^3}{3!} + \cdots + \frac{t^n}{n!} + \cdots \infty$$

$$e^{t}\Big|_{t=0} = 1 + 1 + \frac{1}{2} + \frac{1}{6} + \cdots$$

$$= 2{,}5 + \frac{1}{6} + \frac{1}{24} +$$

$$= 2{,}718\ldots$$

$$e^{at} = 1 + \frac{at}{1!} + \frac{a^2}{2!}t^2 + \cdots + \frac{a^n}{n!}t^n + \cdots$$

$$\left[e^{At}\right] = \left[I\right] + \frac{[A]}{1!}t + \frac{A^2}{2!}t^2 + \cdots + \frac{A^n}{n!}t^n + \cdots$$