

Steifigkeitsmatrix des Stabes in der Ebene

$$[k] = k_{ab} = \frac{\partial F_a}{\partial u_b} = \frac{EA}{e}$$

$$c_{a,b} = (1..4)$$

$$\begin{bmatrix} c^2 & sc & -c^2 & -sc \\ cs & s^2 & -cs & -s^2 \\ -c^2 & -sc & c^2 & sc \\ -cs & -s^2 & cs & s^2 \end{bmatrix}$$

$$c = \cos(\alpha) = \frac{\Delta x}{e} \quad , \quad s = \sin(\alpha) = \frac{\Delta y}{e}$$

$$\Rightarrow k_{ab} = \frac{EA}{e}$$

$$(a,b = 1..4)$$

$\frac{\Delta x^2}{e^2}$	$\frac{\Delta y \cdot \Delta x}{e^2}$	$-\frac{\Delta x^2}{e^2}$	$-\frac{\Delta y \cdot \Delta x}{e^2}$
$\frac{\Delta x \cdot \Delta y}{e^2}$	$\frac{\Delta y^2}{e^2}$	$-\frac{\Delta x \cdot \Delta y}{e^2}$	$-\frac{\Delta y^2}{e^2}$
$-\frac{\Delta x^2}{e^2}$	$-\frac{\Delta y \cdot \Delta x}{e^2}$	$\frac{\Delta x^2}{e^2}$	$\frac{\Delta y \cdot \Delta x}{e^2}$
$-\frac{\Delta x \cdot \Delta y}{e^2}$	$-\frac{\Delta y^2}{e^2}$	$\frac{\Delta x \cdot \Delta y}{e^2}$	$\frac{\Delta y^2}{e^2}$