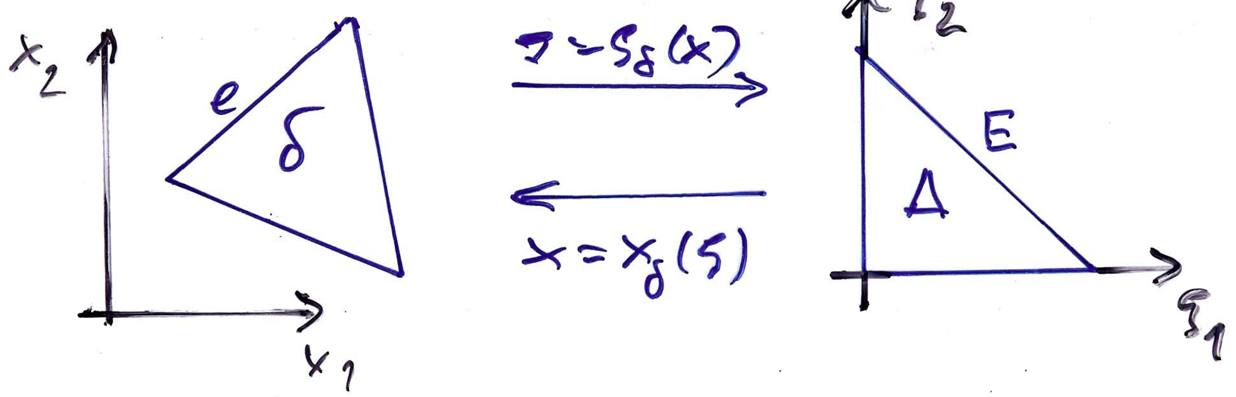
- Alternative proof of the estimate

$$\|\tilde{v}\|^2_{L_2(E)} \le c \, \|\tilde{v}\|^2_{L_2(\Delta)}$$

$c = c_T^2(E)\, c_{1,0}^2(\Delta)$

from the proof of Lemma 4.4;
where $\hat{v} = \tilde{v}(\xi) = v(x_\delta(\xi))$



$$\|\tilde{v}\|^2_{L_2(E)} = (\tilde{v}, \tilde{v})_{L_2(E)} = (M_E \underline{v}, \underline{v})$$

$\forall \tilde{v} \leftrightarrow \underline{v}$

$$\le \lambda_{max} (M_\Delta \underline{v}, \underline{v})$$

$$= \lambda_{max} (\tilde{v}, \tilde{v})_{L_2(\Delta)}$$

$$= \lambda_{max} \|\tilde{v}\|^2_{L_2(\Delta)}$$

EVP

$$\lambda_{max} = \max_{\underline{v}} \frac{(M_E \underline{v}, \underline{v})}{(M_\Delta \underline{v}, \underline{v})} \iff M_E \underline{v} = \lambda_{max} M_\Delta \underline{v}$$

$$M_\Delta^{-1} M_E \underline{v} = \lambda_{max} \underline{v},$$

i.e. $\lambda_{max} = \lambda_{max}(M_\Delta^{-1} M_E) = \lambda_{max}(k)$

polynomial degree