

■ Fragen:

$v \in H^{-1/2} \cap H^s, s \in [-\frac{1}{2}, 1]$

1. $\inf_{w_h \in X_h} \|v - w_h\|_{H^{-1/2}(\Gamma)} \leq c h^{s+1/2} \|v\|_{H^s(\Gamma)}$

z.B. $X_h = \mathcal{P}_0(\Gamma_h) = S_0^0(\Gamma) = \text{span}\{\chi_i\}$

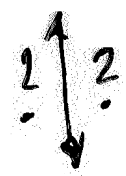
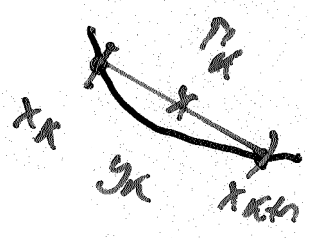
2. Generierung von K_h und f_h :

$\langle \varphi_k, v \varphi_i \rangle = \int_{\Gamma} \varphi_k(y) \int_{\Gamma} E(x,y) \varphi_i(x) ds_x ds_y$

$= \int_{\Gamma_k} \int_{\Gamma_i} E(x,y) ds_x ds_y = ???$

z.B. $\varphi_i = \chi_{\Gamma_i}$

$h_k \int_{\Gamma_j} E(x,y_k) ds_x = (\tau) \quad \text{!!!!}$



spd

3. Lösung von (13)_h $K_h \underline{v}_h = f_h$ z.B. mit PCG

4. $\kappa(K_h) = O(h^{-1}) \rightarrow$ Vorkonditionierung?

5. $\text{ops}(K_h * \underline{v}_h^k) = O(h^{-2(d-1)}) \xrightarrow[\text{techniques}]{\text{Sparse}}$ $O(h^{-(d+1)})$

vollbesetzt!

$O(n)$

2D: $O(h^{-2}) \rightsquigarrow O(h^{-2})$

3D: $O(h^{-4}) \rightsquigarrow O(h^{-2})$