Bemerkung 4.34: Elementweise Assemblierung (IV)

$$\tilde{A}^{(m)} = \gamma_1 S_1 + \gamma_2 S_2 + \gamma_3 S_3$$

mit

$$S_1 = \left(\int_{\hat{K}} \partial_{\hat{x}_1} N_j \cdot \partial_{\hat{x}_1} N_i \, \mathrm{d}\hat{x} \right)_{ij} = \frac{1}{2} \begin{pmatrix} 1 & -1 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 0 \end{pmatrix},$$

$$S_2 = \left(\int_{\hat{K}} \partial_{\hat{x}_1} N_j \cdot \partial_{\hat{x}_2} N_i + \partial_{\hat{x}_2} N_j \cdot \partial_{\hat{x}_1} N_i \, \mathrm{d}\hat{x} \right)_{ij} = \frac{1}{2} \begin{pmatrix} 2 & -1 & -1 \\ -1 & 0 & 1 \\ -1 & 1 & 0 \end{pmatrix},$$

$$S_3 = \left(\int_{\hat{K}} \partial_{\hat{x}_2} N_j \cdot \partial_{\hat{x}_2} N_i \, \mathrm{d}\hat{x} \right)_{ij} = \frac{1}{2} \begin{pmatrix} 1 & 0 & -1 \\ 0 & 0 & 0 \\ -1 & 0 & 1 \end{pmatrix},$$

Literatur H.R. Schwarz: Methode der finiten Elemente, Teubner Stuttgart, 1984.