

● Inhomogeneous 3rd Kind BC:

$$\int_{\Gamma_3} g_3 p^{(u)} ds \xrightarrow{\oplus} f^{(k)} \rightarrow \hat{f}_h \text{ analogous to 2nd Kind BC (1)}$$

$$\int_{\Gamma_3} \alpha(x) p^{(u)}(x) p^{(u)}(x) ds \xrightarrow{\oplus} \hat{K}_{ki} \rightarrow \hat{K}_h$$

Define  $E_{3,h} := \{e_3 \subset \partial\Omega_r \cap \Gamma_3 : \text{3rd Kind BC}\}$

FOR  $e_3 \in E_{3,h}$  DO

FOR  $\alpha \in A_{e_3} \subset A = \{1, 2, 3\}$  DO

FOR  $\beta \in A_{e_3} \subset A = \{1, 2, 3\}$  DO

\* compute  $K_{\alpha\beta}^{(e_3)} := \int_{e_3} \alpha(x) p_{\alpha}^{(e_3,\alpha)}(x) p_{\beta}^{(e_3,\beta)}(x) ds$   
= ... (mms)

\* determine

$$i := i(e_3, \alpha) = i(r, \alpha)$$

$$j := j(e_3, \beta) = j(r, \beta)$$

\* update  $\hat{K}_{ij} := \hat{K}_{ij} + K_{\alpha\beta}^{(e_3)}$

ENDFOR

ENDFOR

ENDFOR

Example CHIP:  $E_{3,h} = \{ \textcircled{1}-\textcircled{2}, \textcircled{2}-\textcircled{3}, \textcircled{3}-\textcircled{4}, \textcircled{4}-\textcircled{5} \}$   
1 2 1 2 1 2 1 2