

## 2D Steady-State Problems (Collocation method)

PDEs:

$$\begin{aligned} F_1(x, y, U_1, U_{1x}, U_{1y}, U_{1xx}, U_{1yy}, U_{1xy}, \dots) &= 0 \\ &= \\ &= \\ F_N(x, y, U_1, U_{1x}, U_{1y}, U_{1xx}, U_{1yy}, U_{1xy}, \dots) &= 0 \end{aligned}$$

Boundary conditions:

$$\begin{aligned} G_1(x, y, U_1, U_{1x}, U_{1y}, \dots, U_N, U_{Nx}, U_{Ny}) &= 0 \\ &= \\ &= \\ G_N(x, y, U_1, U_{1x}, U_{1y}, \dots, U_N, U_{Nx}, U_{Ny}) &= 0 \end{aligned}$$

(periodic and "no" boundary conditions are also permitted)