

Exercises (FEM 2d)

1. use the code template (FEM_convection_reaction)
2. solve the following 2d boundary value problem with convection

$$-\operatorname{div}(k(x) \cdot \operatorname{grad}(u(x))) + k_1(x) \frac{\partial u(x)}{\partial x_1} = f(x)$$

3. solve this boundary value problem on a general triangulation (instead of rectangle)
4. solve the following 2d boundary value problem with convection and reaction

$$-\operatorname{div}(k(x) \cdot \operatorname{grad}(u(x))) + k_0(x) u(x) + k_1(x) \frac{\partial u(x)}{\partial x_1} + k_2(x) \frac{\partial u(x)}{\partial x_2} = f(x)$$