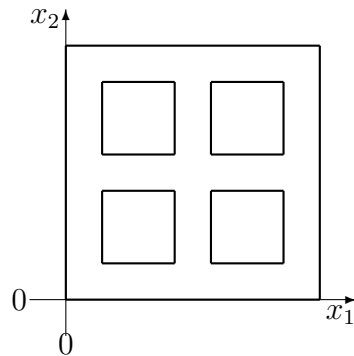


PA02 “COURANT”: Torsion problem

Discuss the torsion problem of a multiply connected domain which has been solved by R. Courant in 1943.



Literature: R. Courant, *Variational Methods for the Solution of Problems of Equilibrium and Vibrations*

Tasks:

- Derive the mathematical model. If possible use symmetries or reduction in the dimension
- Give the variational formulation
- Analysis: discuss existence and uniqueness of solutions
- Discretize the domain Ω
- Numerical analysis: provide an error estimate
- Choose a solver for the system of equations you obtain
- Implementation
- Visualize the results and (if possible) compare them to analytical solutions

- 1 Mathematical model
- 2 Variational formulation
- 3 Analysis
- 4 Discretization
- 5 Solver
- 6 Numerical analysis
- 7 Implementation
- 8 Numerical results