

Bachelor- or Master Thesis



TECHNISCHE
UNIVERSITÄT
DARMSTADT

- **Subject:** Accurate Solutions of Scattering Problems for Arbitrarily Shaped Infinitely Long Cylinders Having Different Type of Boundary Conditions
- **Research Area:** Numerical Mathematics, Electromagnetics
- **Description:**
The aim of this study is to obtain stable and fast converging numerical results of direct scattering problems that appear in electromagnetic scattering theory by using different potential approaches. We consider Dirichlet, Neumann, Impedance and Dielectric conditions on the boundary of arbitrarily shaped infinitely long cylinders due to the type of the problem under investigation. Obstacles are illuminated by a time-harmonic electromagnetic plane wave and the scattered fields are computed either at a near or a far distance. The problems are reduced to systems of boundary integral equations and solved via Nyström method effectively.

Requirements: Knowledge of Numerical Analysis,
Programming with MATLAB / C

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