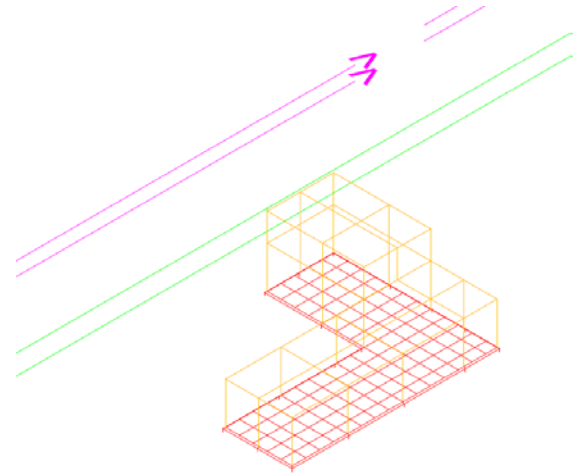


Master Thesis

Influence of stray currents from railway systems on earthing systems

Motivation

In the case of electric railroads, the rail is also used as a return conductor in addition to return conductors. However, a non-negligible proportion of the current also flows in the ground and influences other metallic conductive materials, such as earthing systems, through ohmic coupling.



Research questions

- How is the return current divided between rail and ground?
- What influence does the railroad system have on the given earthing system (coupling)?
- How high are the resulting electromagnetic fields in the environment?

Procedure/Methodology/Task definition

- Construction of a simple 3D grounding model (building), consisting of foundation earth electrode, potential rail, compensation rail, PEN, transformer (20/0.4 kV), cable entry, ...
- Earthing model is situated near an electrical railroad system.
- Simulation of electromagnetic fields and stray currents
 - o MATLAB®
 - o XGSLab
- Current measurement as far as possible

Organisational Issues

Start Immediately. Language: English (preferred)

Contact Person/Supervisor

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