

Simulation of HVDC Cable Joints



TECHNISCHE
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Proposal for a Bachelor's thesis or HiWi job
Study field: Electrical Engineering | Computational Engineering
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Motivation

In the context of the green energy transition, the interest in high voltage direct current (HVDC) cable systems is growing. Cable joints (see Fig. 1) are known to be the most vulnerable part of these systems and must be designed carefully. In this project, a HVDC cable joint is simulated and analyzed using commercial simulation software (COMSOL) as well as the in-house simulation tool *Pyrit*. The main focus of the project is a clear and appealing visualization of the results.

Work plan

- Familiarization with an existing COMSOL model of a cable joint.
- Export of the COMSOL model to *Pyrit*
- Simulation of the cable joint model
 - Validation of the results
 - Execution of parameter studies
- Visualization of the results

Prerequisites

Basic knowledge in Python, basic knowledge in electrodynamics. No prior knowledge about cable joints is required.

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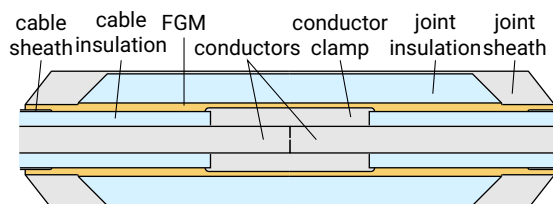


Figure 1: 320 kV HVDC cable joint specimen.