Software development and maintenance for Pyrit - a finite element solver in Python

TECHNISCHE UNIVERSITÄT DARMSTADT

Proposal for a HiWi job
Study field: Computational Engineering | Electrical Engineering

Description

Pyrit is a Finite Element Method Based numerical field simulation software written in Python to solve coupled systems of partial differential equations. Currently, the modular solver covers static and quasistatic electric and magnetic fields, stationary current problems, stationary, and transient heat conduction problems. The different modules can be coupled to analyze multiphysical engineering applications, such as e.g. foil windings, cable joints, and surge arresters.

Currently, the team working on *Pyrit* consists of several WiMis and HiWis. We work together closely and meet regularly on a weekly basis.

Task

The software is under continuous development. Thus, developing further parts and maintaining existing parts of *Pyrit* are the main tasks. Within the work, the following tools will be utilized:

- Organization of the project: Git and Jira
- Correctness of the code: Pytest
- Consistent code style: Pylint and flake8
- Generation of the Documentation: Sphinx
- Automation of the previous points: Gitlab CI and Docker

Prerequisites

Experience with Python and Git
Knowledge of the finite element method can be beneficial but is not necessary

Institut für Teilchenbeschleunigung und Elektromagnetische Felder (TEMF)

T E M F

Contact:
Jonas Bundschuh, M.Sc.
jonas.bundschuh@tu-darmstadt.de
Office: S2|17 125