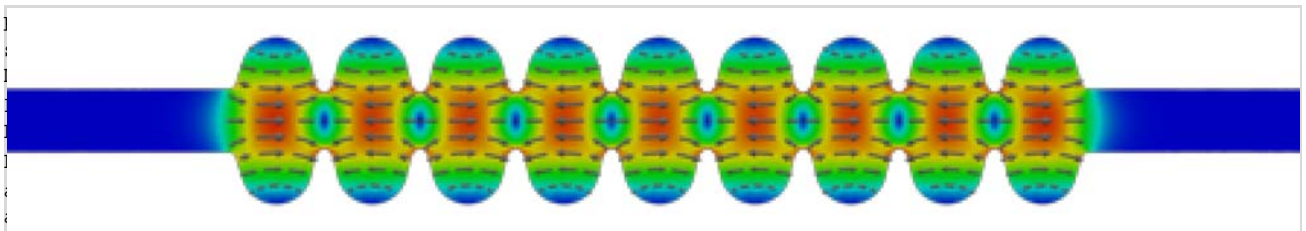


Simulation of the electromagnetic properties of accelerator cavities

MSc-thesis
Electrical engineering / Computational engineering /
Accelerator science



TECHNISCHE
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1. Context

At DESY in Hamburg the particle accelerator PETRA will be equipped with new rf resonators for the acceleration of the particles. For this reason the electromagnetic properties of these cavities have to be investigated. The 3D electric and magnetic fields can be simulated with numeric tools. And these fields need to be evaluated by post processing to calculate the accelerating and deflecting effects on the charged particle beam.

2. Task

The aim of the student work is to perform these simulations with numerical tools and develop the scripts for the post processing of the electromagnetic fields.

3. Prerequisites

Basic knowledge of field simulation, experience with programming with scripting languages. Interest in the physics of particle dynamics.

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Fig. 1: Accelerating cavity with power coupler, tuner and higher order mode couplers