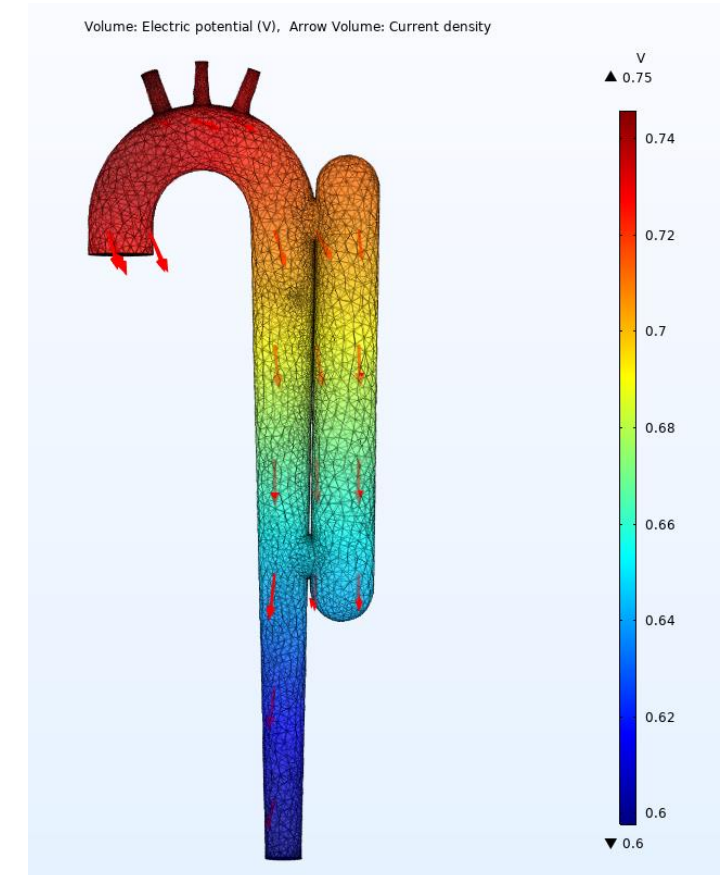


Finite element simulation of aortic diseases

Motivation:

In case of an aortic disease (e.g. stenosis, aneurysm or dissection) the geometry of the aorta as well as the blood flow in the vessel changes. These changes can be detected by measuring the impedance on the body surface. To infer from the measurements to an aortic pathology, a parameterized simulation model is needed. A basic model for the case of aortic dissection already exists but should be enhanced and adapted to other aortic diseases.

This project is part of the LEAD project „Mechanics, Modeling and Simulation of Aortic Dissection“ of TU Graz. You can benefit from an interdisciplinary and international project team.



FEM model of a dissected aorta

Tasks:

- Parameter studies based on the existing model
- Enhanced/new geometry of the aorta
- Mesh convergence studies
- Mapping from a fluid flow model (blood flow influences the electrical conductivity) to the electric field model

Organizational issues:

- Start as soon as possible

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