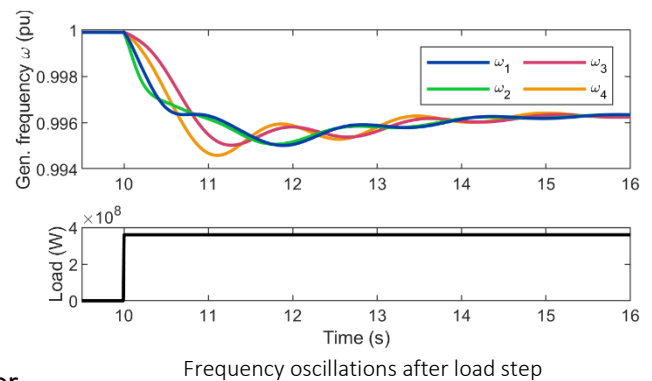
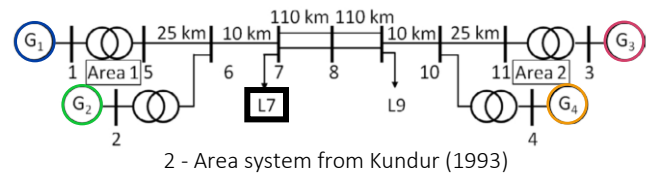


# Announcement Diploma Thesis

## Optimal Power System Damping through Local Actuation

### Content

With growing adaption of renewable energy resources, the amount of stabilizing inertia of conventional power production units is lowered. Thus, frequency and voltage oscillations between participants in the power grid are getting more pronounced. Currently utilized power system stabilizers act on basis of local measurements and only have limited effects on damping grid-wide oscillations. In this thesis, a locally acting optimal control based power system stabilizer concept should be developed. Through utilizing measurements from various grid points, the aim is to achieve better grid-wide oscillation damping than existing solutions. A Simulink Specialized Power Systems model already exists, in which the controller will be tested.



### Tasks

- Literature research on existing power system stabilizer concepts
- Analysis and linearization of the existing Simulink model
- Development of an optimality-based control concept
- Integration of the developed concept into the existing model
- Analysis and validation of the controller with different scenarios

### Requirements

- Experience in Matlab/ Simulink
- Theoretical Background in state space control and basics of optimal control
- Knowledge about electrical power systems is advantageous

The work can be written in German or English.

If you are interested or have questions, please do not hesitate to contact us.

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