



Ankündigung

Sommersemester 2019

ALGORITHMIC OPTIMIZATION (ALOP) – KOMPAKTKURSE

„Hilbert Space Methods“

In the short course *„Hilbert space methods“* we will recall basics about Hilbert spaces and their operators, main examples being Sobolev spaces and differential operators. The main topics will be the applications to the existence and uniqueness of weak solutions of boundary value problems.

15.04. – 27.5.2019

jeweils Mo 10-12

E 10 (Prof. Frerick)

“Decomposition Based Methods for PDE Constrained Optimization”

The short course *“Decomposition Based Methods for PDE Constrained Optimization”* presents algorithmic approaches for the solution of domain decomposition based formulations of optimization problems governed by partial differential equations (PDEs). Domain decomposition formulations split the original PDE into equations on subdomains by introducing auxiliary variables on the subdomain interfaces and coupling conditions. Given the auxiliary variables on the subdomain interfaces, the PDEs on the subdomains can be solved in parallel. Rather than just using this decomposition for the solution of the constraint PDEs, the algorithmic approaches discussed in this course promote this decoupling to the optimization level. In addition to classical optimization approaches like augmented Lagrangian methods and ADMM tailored to the domain decomposition formulation, this course will also present algorithms that are extensions of domain decomposition approaches for PDEs. To make the course accessible to a broader audience, the PDE content will be kept at a minimum, and the optimization algorithms will primarily be discussed for (semi-) discretized versions of PDE constrained optimization example problems.

28.5. und 4.6.2019 (Di)

8:30-10:00

HS 9 (Prof. Heinkenschloss)

6.6.2019 (Do)

8:30-10:00

E 52 (Prof. Heinkenschloss)