Announcement of a Seminar in the Master Program Mathematics

Graduate Seminar on Numerical Simulation (S4E2)

Topic: A Posteriori Error Estimation in Finite Element Analysis

Description: In this seminar we will study several a posteriori error analysis methods for variational problems. These methods allow to derive quantitative estimates for the true error in terms of a computed finite element solution on a given mesh and can be used to adaptively refine the mesh in regions where the estimated local error is large. The seminar will deal with such error estimates in different norms and goal oriented error measures. A particular focus will be error estimates for nonlinear problems based on duality techniques.

The seminar will be based on the text book [1] and on selected journal articles. Students interested in the seminar might in advance contact A. Effland to register and select a particular subject. There will be a first meeting at which subjects are distributed on April, 8th (see below).

Expected background knowledge:

- Introduction to partial differential equations and basic knowledge in functional analysis.

- Introduction to the finite element method.

There are some talks for students enrolled in the B.Sc. program!

Date and time: Tuesday, 14-16, room 2.025, starting in the fourth week of the summer term.

First seminar meeting: April 8, 14 (c.t.), room 2.025

Contact:

Prof. Dr. Martin Rumpf
Institute for Numerical Simulation
Endenicher Allee 60
martin.rumpf@ins.uni-bonn.de
Phone +49 (0)228 / 73 7866

Alexander Effland, M.Sc.
Institute for Numerical Simulation
Endenicher Allee 60
alexander.effland@ins.uni-bonn.de
Phone +49 (0)228 / 73 2718

References

[1] M. Ainsworth and J. Tinsley Oden. *A Posteriori Error Estimation in Finite Element Analysis.* Wiley, 2000.

[2] D. Braess. *Finite Elemente.* Springer Verlag, 2007.