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## DK Seminar

May 10, 2017, 14:15 - 15:45  
University of Vienna,  
Oskar-Morgenstern-Platz 1, HS 2

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### **Optimal convergence for adaptive isogeometric finite element methods**

The CAD standard for geometry representation in 2D or 3D relies on tensor-product splines. Isogeometric analysis (IGA) uses the same splines for the ansatz space as for the geometry. To allow for adaptive refinement, several extensions have emerged, e.g., analysis-suitable T-splines, hierarchical splines, or LR-splines. All these concepts have been studied via numerical experiments. However, so far there exists only little literature concerning the thorough mathematical analysis of adaptive isogeometric finite element methods (IGAFEM). For standard FEM with globally continuous piecewise polynomials, adaptivity is well understood. In this talk, we consider an IGAFEM for elliptic (possibly non-symmetric) second-order PDEs in arbitrary space dimension. We employ hierarchical splines of arbitrary degree. We propose an adaptive algorithm which guarantees linear convergence of the error estimator with optimal algebraic rate.