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DK Seminar

May 04, 2016, 14:15 - 15:45
University of Vienna,

Oskar-Morgenstern-Platz 1, WPI seminar room, 8th floor

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Adaptive Isogeometric Boundary Element Method

We investigate the boundary element method (BEM) in the frame of isogeometric analysis (IGA) which uses the same functions for the ansatz space as for the geometry parametrization. As model example we consider the weakly-singular integral equation corresponding to the 2D Laplace problem. We introduce some suitable a posteriori error estimators which control the (in general, non-computable and unknown) discretization error. Its local contributions are used for adaptive IGABEM computations to steer an adaptive algorithm of the form

Solve-Estimate-Mark-Refine

for which we can prove optimal convergence behavior. Unlike available results in the literature, the adaptive algorithm does not only steer the local mesh-refinement but also the local smoothness of the ansatz functions across nodes of the boundary partition.