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Mathematics Institute of Computational Science and Engineering - MATHICSE

MATHICSE COLLOQUIUM

WEDNESDAY 6 JULY 2016 - ROOM MA A1 12 - 16h15

Prof. Paola ANTONIETTI (MOX, Politecnico di Milano, Italy) will present a seminar entitled:

"Fast solution techniques for high order Discontinuous Galerkin methods"

Abstract:

We present two-level and multigrid algorithms for the efficient solution of the linear system of equations arising from high-order discontinuous Galerkin discretizations of second-order elliptic problems. Starting from the classical framework in geometric multigrid analysis, we define a smoothing and an approximation property, which are used to prove uniform convergence of the resulting multigrid schemes with respect to the discretization parameters and the number of levels, provided the number of smoothing steps is chosen sufficiently large. A discussion on the effects of employing inherited or noninherited sublevel solvers is also presented as well the extension of the proposed techniques to agglomeration-based multigrid solvers. Numerical experiments confirm the theoretical results.

Lausanne, 7 juin 2016 /AQ/cr