ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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➢ **WEDNESDAY 5 MARCH 2014 - ROOM MA A3 30 - 16h15**

Dr. Markus BACHMAYR (Institut für Geometrie und Praktische Mathematik, RWTH, Aachen / Germany)) will present a seminar entitled:

"Adaptive low-rank methods for high-dimensional elliptic partial differential equations"

Abstract:

In [1], we have analyzed the convergence and complexity of an iterative scheme for high-dimensional operator equations which combines adaptive approximation in a basis and low-rank approximation in hierarchical tensor formats. This talk gives an overview of these developments and subsequently focuses on the particular difficulties that arise in applying the method to elliptic PDEs. The basic underlying question we need to address in order to obtain complexity bounds also in this setting is: to what extent does preconditioning affect the computational cost of iterative schemes for low-rank tensor representations?

[1] M. Bachmayr and W. Dahmen, Adaptive Near-Optimal Rank Tensor Approximation for High-Dimensional Operator Equations, arXiv:1304.7796 (to appear in FoCM)

Lausanne, 14 January 2014/DK/cr
