ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Prof. Assyr Abdulle
Mathematics Institute of Computational Science and Engineering - MATHICSE

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SEMINAR OF NUMERICAL ANALYSIS

> **WEDNESDAY 16 MAY 2012 - ROOM MA 12 - 16h15**

Dr. Patrick HENNING (University of Münster, Germany) will present a seminar intitled:

"A Newton-Scheme Framework for Multiscale Methods for Nonlinear Elliptic Problems "

Abstract:
We present a very general framework for formulating multiscale methods for nonlinear elliptic homogenization problems. The framework is based on a very general coupling of one macroscopic equation with several localized fine-scale problems. In particular, we recover the Heterogeneous Multiscale Method (HMM), the Multiscale Finite Element Method (MsFEM) and the Variational Multiscale Method (VMM) from the framework. In order to solve the arising equations, we also present a solution algorithm that is based on a Newton scheme with damping.

Lausanne, 09 May 2012/AA /vl

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