ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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SEMINAR OF NUMERICAL ANALYSIS

➢ **WEDNESDAY 1ST APRIL 2015 - ROOM INF 119 - 16h15**

Prof. Daniel PETERSEIM (Institute of Numerical Simulation, Bonn / Germany) will present a seminar entitled:

"Eliminating the pollution effects in Helmholtz problems by local subscale correction"

Abstract:

A new Petrov-Galerkin multiscale method for the numerical approximation of high-frequency acoustic scattering problems will be presented. The discrete trial and test spaces are generated from standard mesh-based finite elements by local subscale corrections in the spirit of numerical homogenization. The precomputation of the corrections involves the solution of coercive cell problems on localized subdomains of size mH; H being the mesh size and m being the oversampling parameter. If the mesh size and the oversampling parameter are such that Hk and log(k)/m fall below some generic constants, the method is stable and its error is proportional to H; pollution effects are eliminated in this regime.
For reference, see http://arxiv.org/pdf/1411.7512 and http://arxiv.org/abs/1503.04948 .

Lausanne, 25 March 2015/DK/cr
