ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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SEMINAR OF NUMERICAL ANALYSIS

- **WEDNESDAY 19 SEPTEMBER 2012 - ROOM GC A3 30 - 16h15**

Prof. Guglielmo Scovazzi, (Duke University, Durham / USA) will present a seminar entitled:

"High-order discontinuous Galerkin methods for flows in porous media : high-fidelity viscous fingering computations on fully unstructured meshes"

Abstract:

A new discontinuous Galerkin discretization is proposed to attack viscous fingering phenomena, which occur naturally in a number of important porous media flow applications. Viscous fingering can significantly impact a number of subsurface engineering applications, such as carbon sequestration and enhanced oil recovery. Current methods used in reservoir simulation rely on low-order numerical formulations (of finite difference or finite volume type). Although robust and efficient, these methods are not high-fidelity and are very sensitive to mesh orientation. The new DG method proposed addresses these issues, in that it leads to arbitrarily high-order discretizations on fully unstructured grids. Numerical examples in the context of carbon sequestration and reservoir engineering problems will be presented.

Lausanne, 6 September 2012/FN/cr