ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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➢ **WEDNESDAY 26 MARCH 2014 - ROOM MA A3 30 - 16h15**

Dr. Sascha SCHNEPP (EPFZ, Institute of Electromagnetic Fields, Zürich, Switzerland) will present a seminar entitled:

"Space-time and hp-adaptive discontinuous Galerkin methods for time-domain electromagnetics"

Abstract:

The talk gives an overview of our recent efforts on time-domain Discontinuous Galerkin methods. These include a computationally attractive hp-adaptive scheme for a classical time-marching formulation on hexahedral elements [1] and two methods employing space-time formulations. We obtained a non-dissipative method through the choice of non-coinciding trial and test spaces and implemented hp-adaptivity, which in the context of the space-time formulation includes element-wise variable order time integration and local stepsize control [2]. In a different approach, we apply local space-time Trefftz-bases, i.e., basis functions which exactly fulfill the underlying PDE [3].

[1] S M Schnepp, Error-Driven Dynamical hp-Meshes for the Discontinuous Galerkin Method in Time-Domain, JCAM (in press)
[2] M Lilienthal, S M Schnepp, T Weiland, Non-Dissipative Space-Time hp-Discontinuous Galerkin Method for the Time-Dependent Maxwell Equations, arXiv:1307.5310
[3] F Kretzschmar, S M Schnepp, I Tsukerman, T Weiland, Discontinuous Galerkin Methods with Trefftz Approximation, JCAM (in press)

Lausanne, 18 February 2014/JH/cr