ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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➢ **WEDNESDAY 23 MAY 2012 - ROOM MA A1 12 - 16h15**

Prof. Helmut Harbrecht, (University of Basel /Switzerland) will present a seminar entitled:

"Shape variations in optimization and verification"

Abstract:

The domain is the unknown variable in many problems from applications in science and engineering. Examples arise from free boundary problems, optimal design, or inverse obstacle problems. These problems can be formulated as the minimization of functional defined over a class of admissible domains. A difficult task is that the functional depends on the solution of a boundary value problem on the given domain, the so-called state equation.
In contrast to such deterministic problems one has to consider stochastic shape variations in result verification. We think here of the treatment of partial differential equations on uncertain domains or with uncertain interfaces as arising e.g.~in the treatment of tolerances in the shape of products fabricated by line production.
In this talk we present analytical aspects of shape variations as well as the numerical aspects like the discretization of the domain and the solution of boundary value problems on varying domains.

Lausanne, 13 April 2012 / DK/cr