

Prof. Fabio Nobile

*Mathematics Institute of Computational Science and Engineering - MATHICSE
and*

Prof. Anthony Davison

Mathematics Institute for Analysis and Applications - MATHAA

Joint SEMINAR OF NUMERICAL ANALYSIS / STATISTICS

➤ **FRIDAY 17 OCTOBER 2014 - ROOM MA A3 31 - 15h15**

Dr. David GINSBOURGER (University Bern, Switzerland) will present a seminar entitled :

“Gaussian random field models for the adaptive design of costly experiments”

Abstract:

Gaussian random field models have become commonplace in the design and analysis of costly experiments. Thanks to convenient properties of associated conditional distributions, Gaussian random field models not only allow predicting black-box responses for untried input configurations, but can also be used as a basis for evaluation strategies dedicated to optimization, inversion, uncertainty quantification, probability of failure estimation, and more.

After an introduction to Gaussian random field modelling and some of its popular applications in adaptive design of deterministic numerical experiments, we will present two recent contributions.

First, results on infill sampling criteria for uncertainty reduction will be presented and illustrated, with application to an excursion set estimation problem from safety engineering.

Second, we will focus on a high-dimensional application of Gaussian field modelling to an inversion problem in water sciences, where an original non-stationary covariance kernel relying on fast proxy simulations is used.

Lausanne, 07 October 2014/FN/cr