



Final Program

Monday 18 March

08.30 Opening of the welcome desk

09.30 **Welcome Address**

Xavier Longaygue, IFPEN

Opening Address

Miguel Munoz Zuniga, IFPEN & Bertrand Ios, EDF

Chair: Bertrand Ios, EDF

09.45 Dimension reduction of the input parameter space for potentially vector valued functions
Clémentine Prieur, Univ. Grenoble Alpes, Jean Kuntzmann Lab., Inria project/team AIRSEA

10.45 **Coffee break**

11.00 Estimation of Borgonovo's moment independent importance measures
P. Derennes, Univ. Paul Sabatier

Chair: Sebastien Da Veiga, Safran

11.30 Bayesian optimization in effective dimensions via kernel-based sensitivity indices
A. Spagnol, Ecole des Mines de Saint-Etienne, Safran Tech

12.00 Gaussian process regression models under linear inequality conditions
A. F. Lopez-Lopera, Ecole des Mines de Saint-Etienne

12.30 **Lunch**

Chair: Julien Bect, CentraleSupélec

14.00 Dimension Reduction for the Bayesian Optimization of Shapes
D. Gaudrie, Ecole des Mines de Saint-Etienne, Groupe PSA

14.30 Stochastic Inversion Under Functional Uncertainties
M-R El. Amri, Univ. Grenoble Alpes, IFPEN

Chair: Miguel Munoz Zuniga, IFPEN

15.00 **Poster Blitz 1**

P/01 Surrogate modeling of stochastic simulators using Karhunen-Loeve expansions
S. Azzi, Telecom ParisTech, LTCI, Univ. Paris-Saclay

P/02 Interpretability of statistical learning models in an industrial context
C. Benard, Safran Tech, Sorbonne Univ.

P/03 Gaussian process metamodeling for functional-input coastal coding code
J. Betancourt, Toulouse Mathematics Institute, Univ. Paul Sabatier



P/04 Blackbox optimization and decomposition method for maintenance scheduling
T. Bittar, CERMICS, Ecole des Ponts ParisTech/PRISME Department, EDF R&D

P/05 Improvement of error covariance matrix computation in variational methods
S. Cheng, EDF R&D LIMSI, CNRS, Univ.Paris-Sud, Univ. Paris-Saclay

P/06 Chance constraint optimization of a complex system - Application to the design of a floating onshore wind turbine
A. Cousin, IFPEN, Ecole Polytechnique

P/07 Clustering multivariate functional data defined on random domains: an application to vehicle trajectories analysis
S. Golovkine, National School for Statistic and Information Analysis (ENSAI)

P/08 Polynomial chaos expansion for wave propagation
A. Goupy, CEA, ENS Paris-Saclay

P/09 Principal Component Analysis and "boosted" weighted least-squares method for training tree tensor networks
C. Haberstich, Ecole Centrale de Nantes

P/10 Sensitivity analysis of an avalanche flow dynamics model using aggregated indices
M-B Heredia, Irstea, Univ. Grenoble Alpes

15.30 Coffee break

Chair: Anthony Nouy, Ecole Centrale Nantes

16.00 Stochastic spectral embedding for Bayesian inverse problems
P.-R. Wagner, ETH Zurich

16.30 Conditional Quantile Optimization via Branch and Bound Strategies
L. Torossian, INRA (MIAT)/Univ. of Toulouse (Institute of Mathematics)

Chair: Miguel Munoz Zuniga, IFPEN

17.00 Poster Blitz 2

P/11 Maximum Entropy on the Mean approach to solve inverse problems with an application in computational thermodynamics
E. Lawrence, Univ. Paris Saclay, CEA DEN SCCME

P/12 Sparse polynomial chaos expansions: Benchmark of compressive sensing solvers and experimental design techniques
N. Luthen, ETH Zurich, Switzerland

P/13 A predictive Data Driven Approach based on Reduced Order Models for the Morphodynamic Study of a Coastal Water Intake
R-S Mouradi, EDF R&D LNHE, CERFACS, Univ. Toulouse, INPT

P/14 Extended Principal Component Analysis algorithm for adaptive model reduction in inverse problems
A. Mukhin, Moscow Institute of Physics and Technology



P/15 Combining geostatistics and numerical simulations to improve estimations of pollution plumes in ground-water

L. Pannecoucke, Mines ParisTech, Centre de Géosciences

P/16 Metamodelling for spatial outputs with functional PCA. Application to marine flooding

T.V.E. Perrin, Ecole des Mines de Saint-tienne (EMSE)

P/17 Robust Uncertainty Quantification of a Risk Measurement from a Computer Code

J. Stenger, Univ.Toulouse III - Paul Sabatier

P/18 Optimisation of multi-year planning strategies to better integrate renewable energies and new electricity uses in the distribution grid

B. Tebbal Barracosa, L2S, CentraleSupélec, Univ. Paris-Saclay, EDF R&D

P/19 A rigorous framework to describe margins

A. Touboul, CERMICS - Univ. Paris-Est

P/20 Emulating the response PDF of stochastic simulators using sparse generalized lambda models

X. Zhu, ETH Zurich

17.30- **Poster session**

18.30 End of the poster session

18.30 Voting session for the best oral and poster award
Session reserved for members of the Scientific and Executive Committees

Tuesday 19 March

08.15 Opening of the welcome desk

09.00 **Opening Address**
Hervé Monod, INRA

09.05 Course: A short introduction to data assimilation (1/2)
Emmanuel Cosme, Univ. Grenoble Alpes

10.35 **Coffee break**

Chair: Guillaume Perrin, CEA

11.05 Privacy sets revisited
Werner Müller, Johannes Kepler Univ. Linz

11.50 Finding a compromise between information and regret in clinical trials
Asya Metelkina, Azoth Systems

12.35 **Lunch**

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Chair: Clémentine Prieur, University Grenoble-Alpes

- 14.00** Measures minimizing regularized dispersion
Anatoli Zhiglavsky, Cardiff Univ.
- 14.45** Bayesian sequential strategies for computer experiments
Emmanuel Vazquez, CentraleSupélec
- 15.30** Model-Based Robust Design in Industry
Ron Bates, Rolls-Royce
- 16.15** **Coffee break**

Chair: Céline Helbert, Ecole Centrale Lyon

- 16.45** Tumour characterization from Positron Emission Tomography imaging data
Eric Wolsztynski, Univ. College Cork
- 17.30** Space-filling designs based on Rényi entropy
Astrid Jourdan, EISTI
- 18.15** End of the day's lectures
- 20.00** **Conference Dinner**

Wednesday 20 March

- 8.30** Opening of the welcome desk
- 09.00** Course: A short introduction to data assimilation (2/2)
Emmanuel Cosme, Univ. Grenoble Alpes
- 10.30** **Coffee break**

Chair: Josselin Garnier, Ecole Polytechnique

- 11.00** Synthesis of geological images using deep learning techniques
Ahmed Elsheikh, Heriot-Watt Univ.
- 11.45** Machine Learning techniques in Industry. Application to oil refining
Benoit Celse, IFPEN
- 12.05** An optimal balance between exploration and repetitions in sensitivity analysis
Gildas Mazo, Inra
- 12.50** Efficient Topological and morphological characterization of 3D complex microstructures
Maxime Moreaud, IFPEN
- 13.10** **Lunch**

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Chair: Delphine Sinoquet, IFPEN

- 14.10** Multi-objective Bayesian optimization with reference point
Rodolphe Le Riche, CNRS LIMOS at Mines St-Etienne

- 14.55** Statistical 3D analysis of foam bubbles in porous media
using a large NoSQL Database
Jean-François Lecomte, IFPEN

- 15.15** Detecting and exploiting the low-effective dimension of multivariate problems using gradient
information
Olivier Zahm, INRIA

- 16.00** Optimization and reliability design of a floating offshore wind turbine
Martin Guiton, IFPEN

- 16.20** GDR MASCOT-NUM
Hervé Monod, INRA & Clémentine Prieur, Univ. Grenoble-Alpes

- 16.30** **End of the conference**

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