

# Workshop "Statistical methods for safety and decommissioning"

Avignon Université, Campus Hannah Arendt, Bâtiment Nord, Amphithéâtre 2 E 07

74 rue Louis Pasteur, 84000 Avignon

**November, 21, 2022**

9h00 Welcome

- 9h30 Introduction (Univ. d'Avignon)
- 9h40 Nicolas Bousquet (EDF R&D): Risk, uncertainty, and robust decision-making: an attempted Introduction
- 10h25 Mitra Fouladirad (Ecole Centrale de Marseille): Wind speed modelling with stochastic processes for wind turbine production study

11h10 Coffee break (20')

- 11h30 Michele Désenfant (LNE): A measurement process is not a deterministic algorithm!

12h15 Lunch time (1h45, Salle Apparat, RdC)

- 14h00 Jean-Philippe Dancausse, Magali Saluden et Catherine Eysseric (CEA Marcoule, DES/DDSD): Expected contributions of statistical methods to nuclear decommissioning of CEA facilities
- 14h30 Yvon Desnoyers (Geovariances): Smart use of the variogram to explore spatial data, to break down variance contributions and to model radiological contaminations

15h15 Coffee break (30')

- 15h45 Aloïs Clément (CEA Valduc): Bayesian Approach for Multigamma Radionuclide Quantification Applied on Weakly Attenuating Nuclear Waste Drums
- 16h30 Claude Norman, Sarah Michalak (IAEA) and Tom Burr (Los Alamos National Lab.): Reconcilier l'estimation d'incertitudes de mesure ascendante basée sur le GUM (Guide for the Expression of Uncertainty in Measurement) et l'estimation descendante basée sur le modèle statistique de l'IAEA

17h15 Poster session

18h00 Apero (Salle Apparat, RdC)

19h30 End of the day

20h30 – Gala dinner, Restaurant "Carré du Palais", 1 Place du Palais, 84000 Avignon.

## November, 22, 2022

- 9h00 Emanuele Borgonovo (Bocconi University): Reliability importance via optimal transport
- 9h45 Sophie Ancelet (IRSN Fontenay-aux-Roses): Hierarchical modeling and Bayesian statistics for a better consideration of uncertainties when estimating radiation-related risks

10h30 Coffee break (30')

- 11h00 François Bachoc (Institut de Mathématiques de Toulouse): Introduction to Gaussian process with inequality constraints - Application to coast flooding risk
- 11h45 Mélanie Ducoffe (Airbus Group): Verification of overestimation and partial monotonicity for neural network-based surrogate for aircraft braking distance estimation

12h30 Lunch time (1h30, Salle Aparat, RdC)

- 14h00 Thomas Romary (Mines ParisTech): Scenario reduction for uncertainty quantification in Uranium in situ recovery
- 14h45 Amandine Marrel (CEA Cadarache, DES/DER): Statistical approach in nuclear safety problems: recent advanced around sensitivity analysis and metamodeling

15h30 Good-bye

## Poster session

- Jean Baccou (IRSN) : Modèle probabiliste de prédiction de chemins de fissuration : application aux matériaux cimentaires
- Vincent Chabridon (EDF R&D): Robustness assessment of reliability-oriented quantities of interest for the safety of industrial structures using the info-gap framework
- Chantal de Fouquet (Ecole des Mines de Paris): Estimation du panache de contamination de la T22 à proximité de Tchernobyl. Comparaison de méthodes.
- Clément Gauchy (CEA Saclay, DES/DM2S): Uncertainty quantification and global sensitivity analysis of seismic fragility curves using kriging
- Raphaël Perillat (Phimeca): Réduction de dimension et méta-modélisation pour la prise en compte des incertitudes en crise nucléaire
- Martin Wieskotten (CEA Marcoule et Univ. Avignon): Traitement géostatistique des résultats de mesure pour la caractérisation radiologique dans le cadre de l'assainissement/démantèlement de sites nucléaires.