Frédéric JOLIOT & Otto HAHN
SUMMER SCHOOL ON
NUCLEAR REACTORS
"Physics, Fuels and Systems"

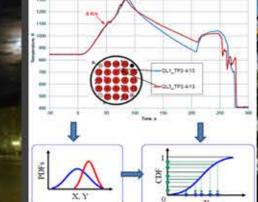For more information, please visit our web site: www.fjohss.eu

August 23 - September 1, 2017 - Karlsruhe, Germany

FJOH 2017

2017

Uncertainties in nuclear reactor systems analysis: Improving understanding, confidence and quantification

Lecturer	Topic	Hours
	Introduction	**2h**
R. Taylor (Manchester Univ. & NNL)	On the practical importance of uncertainties for nuclear applications	
R. Taylor (Manchester Univ. & NNL)	Overview of current approaches, practices, and trends in the nuclear industry	
	Methods of uncertainty assessment and propagation	**12 h**
H. Abdel-Khalik (Purdue Univ.)	Statistical uncertainty, error propagation, correlation analysis, statistical testing, linear regression, estimation techniques	
B. Iooss (EdF)	Uncertainty quantification using global sensitivity analysis methods	
S. Destercke (Compiegne TU/CNRS)	Epistemic uncertainty propagation in risk/reliability analysis	
W. Oberkampf (Consulting Engineer)	VVUQ of modelling & simulation tools: Basic principles and methodology	
W. Oberkampf (Consulting Engineer)	Planning and designing representative and optimized (envelope) validation experiments	
	Error analysis in reactor core and fuel design and operations	**10 h**
H. Leeb (TU Wien)	Nuclear data covariance assessment and data assimilation	
T. Kozlowski (Univ. Illinois)	Uncertainty evaluation, sensitivity analysis, error propagation and V&V experiments for core physics	
R. Macian-Juan (TU Munich)	New methods for assessing uncertainties in CFD simulations, inferring limitations	
A. Bouloré (CEA)	Uncertainties in fuel modelling	
R. van Geemert (AREVA)	Deriving information from large sets of measurements	
	Uncertainty quantification methods in safety analyses	**10 h**
H. Gläser (GRS)	Deterministic and statistical methods of uncertainty and sensitivity evaluation	
E. Ivanov (IRSN)	Safety margin assessment and decision process	
F. Gaudier (CEA)	Evaluating uncertainties and correlations in fuel thermo-mechanics and system thermo-hydraulics calculations	
A. Petruzzi (NINE Consulting)	CIAU methodology for uncertainty evaluation in thermal-hydraulics	
X. Zheng (JAEA)	Uncertainty quantification for severe accident scenarios	
	Group reflection on selected scientific topics	**6 h**
	Seminar	**2 h**
W. Raskob (KIT)	Real-time on-line decision support systems for off-site emergency management	
	Technical visits of KIT R&D facilities	

Extra-curricular activities and a weekend programme will be organized. Full registration fees, including lodging and food: €2000 - Reduced fees: €1000 for fellowship recipients.

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