

ERCOTAC – Uncertainty Management & Quantification in Industrial Analysis and Design

30 November – 1 December 2015

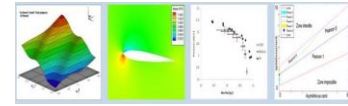
EDF, Chatou, Paris, France

Monday 30 November 2015

9:00	Registration & Coffee	
9:20	Welcome statement by EDF & ERCOTAC	
9:30	General Introduction to UMQ	Prof. C. Hirsch
	Methodologies for UMQ	
10:15	Foundations and applications of Method of Moments for Uncertainty Quantification	Dr G. Roge
11:15	Refreshments	
11:45	Overview of Propagation Techniques	Prof. C. Hirsch
12:45	Lunch	
	Applications of UMQ	
14:00	UMQ for the Aircraft Industry	Dr G. Roge
15:00	UMQ for Formula 1	Dr. F. Montomoli
16:00	Refreshments	
16:30	Q&A	ALL
17:00	Close	

Tuesday 1 December 2015

8:30	Coffee	
	Applications of UMQ	
9:00	UMQ for the Nuclear Industry(I)	Dr. R. Camy
10:00	UMQ for the Nuclear Industry(II)	Dr. I. Zentner
10:30	Refreshments	
11:00	UMQ for Turbomachinery (I)	Prof. S. Shahpar
12:00	UMQ for Turbomachinery (II)	Prof. S. Shahpar
12:45	Q&A	All
13:15	Lunch	
14:15	Close	



Aim

Uncertainty quantification is a new paradigm in industrial analysis and design as it aims at taking into account the presence of numerous uncertainties affecting the behaviour of physical systems. Dominating uncertainties can be either be operational (such as boundary conditions) and/or geometrical resulting from unknown properties, such as tip clearances of rotating compressor blades or from manufacturing tolerances.

Whether bringing a new product from conception into production or operating complex plant and production processes, commercial success rests on careful management and control of risk in the face of many interacting uncertainties. For example a new aircraft or aero-engine must be designed and engineered within a given time frame and budget to meet a given set of performance requirements, and then manufactured at unit cost and rates that meet an overall business plan. Today's fiercely competitive market and increasingly stringent regulatory environment is such that there is very little margin of error. Failure to appreciate, understand and appropriately manage risks inevitably results in severe financial penalties, and even irrevocable damage to reputation.

Historically, chief engineers and project managers have estimated and managed risk using mostly human judgment founded upon years of experience and heritage. As the 21st century begins to unfold, the design and engineering of products as well as the control of plant and process are increasingly relying on computer models and simulation. This era of virtual design and engineering opens the opportunity to deal with uncertainty in a systematic formal way by which sensitivities to various uncertainties can be quantified and understood, and designs and processes optimized so as to be robust against such uncertainties. Human judgment will always play an important role, but leading companies in many fields of engineering are increasingly aware of these possibilities and uncertainty quantification is beginning to feature strongly in their strategic aspirations. Thus this is a very opportune moment to introduce a two- day awareness course on this emerging topic.

The aim is to share the aspirations and requirements of leading companies in the fields of Aerospace, Formula 1, Marine, Nuclear, and Power generation ; review emerging methods and techniques and how these are being deployed; and define the current state-of-the-art and map out-near term future possibilities.

Lecturers

Prof. Charles Hirsch - Coordinator
Em. Vrije Universiteit Brussel
President, Numeca Int., Belgium

Dr Gilbert Roge
Dassault Aviation, France

Dr. Irmela Zentner
EDF, Chatou, Paris, France

Prof. Shahrokh Shahpar
Rolls-Royce, Derby, UK

Dr. Francesco Montomoli
Imperial College, London, UK

Dr. Romain Camy, EDF.
Chatou , Paris, France

Fees:

Members - €580

Non-Members - €850.

Please note fees do not cover accommodation.

Registration:

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