

TINCE • 29 | 31 AUG. 2018 • EDF-Lab, Paris-Saclay • France

International Conference on Technological Innovations in Nuclear Civil Engineering

PROGRAM

August 29, 2018



• SPONSORING & PARTNERSHIP •



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International Conference on Technological Innovations in Nuclear Civil Engineering

OVERVIEW

WEDNESDAY 29

- 08:30** | Registration
- 09:00** | Opening • Auditorium
Laurent BILLET
 Delegated Scientific Directeur, EDF
Sébastien DIAZ
 Chair, SFEN Technical Section of Civil Engineering
Guillaume HERVÉ-SECOURGEON
 Chair, TINCE 2018
- 09:15** | Keynote • Auditorium
French experience in the design and construction of containment of nuclear power plant in France and abroad during the past decades
 Francis BARRÉ - Containment Department Manager, GDS
- 10:15** | Technical & Special Sessions in Parallel :

Amphi. 1

Construction

Amphi. 2

Beyond Design

Auditorium

VeRCoRs ★

- 12:30** | Welcome aperitif
 Technical Visits in Parallel :

01:15 - 07:00

VeRCoRs Mockup



02:00 - 06:00

Tamaris



+

Connexity



02:00 - 06:00

Connexity



+

Tamaris



THURSDAY 30

- 08:30** | Registration
- 09:00** | Keynote • Auditorium
Design optimization of nuclear structures – An overview of the next innovative steps to improve constructability
 Amit H. VARMA - Professor and Director of Bowen Lab, Purdue Univ.
 & Guillaume HERVE-SECOURGEON - Civil Engineering Expert, EDF R&D
- 10:00** | Technical & Special Sessions in Parallel :

Amphi. 1

Earthquake Engineering

Amphi. 2

Monitoring

Auditorium

Civil Works Design Optimisation ★

- 12:00** | Lunch

- 01:50** | Technical & Special Sessions in Parallel :

Amphi. 1

Design Optimisation & Transient Dynamics

Amphi. 2

Leaktightness

Auditorium

EQ Eng, Geotechnics & Geodynamics ★

- 03:30** | Coffee Break

- 04:00** | Technical & Special Sessions in Parallel :

Amphi. 1

Earthquake Engineering

Amphi. 2

Monitoring

Auditorium

PhD ★

- 07:00** | Conference reception & PhD Award Ceremony

FRIDAY 31

- 09:00** | Registration
- 09:30** | Keynote • Auditorium
Why Fukushima accident happens ?
 Antonio GODOY - Managing Director, James J. Johnson & Associates
- 10:30** | Technical & Special Sessions in Parallel :

Amphi. 1

Earthquake Engineering

Amphi. 2

Monitoring & Crack Prediction

Auditorium

Steel Concrete Structures ★

- 12:15** | Lunch

- 01:30** | Technical & Special Sessions in Parallel :

Amphi. 1

Earthquake Engineering & Geotechnics

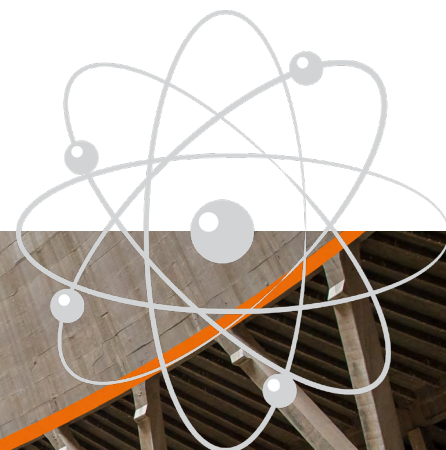
Amphi. 2

Ageing & Irradiation

Auditorium

Design & Hazard Assessment

- 02:50** | End of the Conference



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TOPICS

T01 - Life management optimization

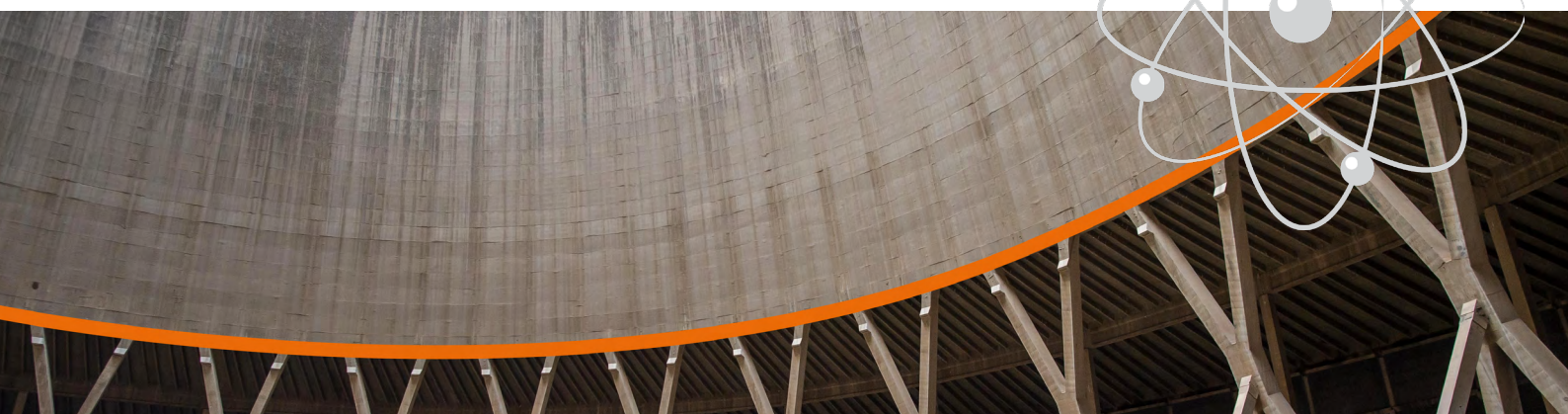
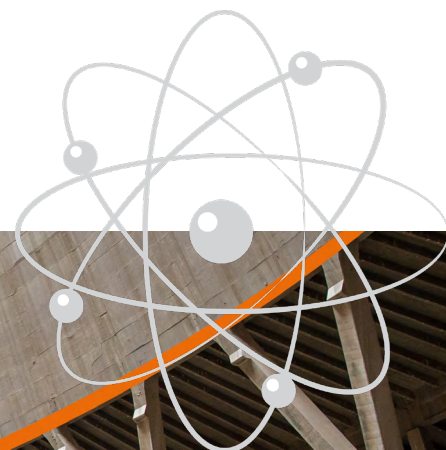
- T01-1 • Repairing technics
- T01-2 • Ageing of concrete
- T01-3 • Monitoring technics
- T01-4 • Crack prediction
- T01-5 • Concrete under irradiation
- T01-6 • Leak tightness prediction

T02 - Construction optimization

- T02-1 • Advanced concrete mixes and high performance concrete
- T02-2 • Mass concrete and crack control
- T02-3 • Geotechnics and soil improvement
- T02-4 • Steel concrete structures
- T02-5 • Prefabrication
- T02-6 • Digital site management
- T02-7 • Sustainable management of construction

T03 - Optimization of structural design and retrofitting

- T03-1 • Performance based concrete design of nuclear structures
- T03-2 • Earthquake engineering
- T03-3 • Optimized design for thermal actions
- T03-4 • Transient dynamics
- T03-5 • Geotechnics, fluid and soil structure calculation
- T03-6 • Beyond design prediction



International Conference on Technological Innovations in Nuclear Civil Engineering

08:30	REGISTRATION										
09:00	Opening Laurent BILLET - Delegated Scientific Director, EDF Sébastien DIAZ - Chair, SFEN Technical Section of Civil Engineering Guillaume HERVÉ-SECOURGEON - Chair, TINCÉ 2018										
09:15	French experience in the design and construction of containment of nuclear power plant in France and abroad during the past decades Francis BARRÉ - Containment Department Manager, GDS										
09:30	📍 Amphitheater 1			📍 Amphitheater 2			📍 Auditorium / Special Session				
	• Construction •			• Beyond Design •			• VeRCoRs •				
	Chair: Amit H. VARMA, Purdue University Co-chair: Cédric GIRY, ENS Paris-Saclay			Chair: Farhang OSTADAN, BECHTEL			Chair: Jacky MAZARS, Grenoble Institute of Techn.				
	T02-1	59 • Resistance of Alkali-Activated Natural Pozzolan/Slag Concrete to Chloride-Induced Corrosion ▶ Prof. Nader GHAFOORI, Iowa State University, USA		T03-6	42 • Effects of Large Fire due to Dispersal of Jet Fuel during Aircraft Impact ▶ Ilhwan MOON, KEPKO E&C, Republic of Korea		• VeRCoRs program: what is going on, what will go on ▶ Benoît MASSON, Manuel CORBIN & Julien NIEPCERON, EDF, France				
	T02-2	10 • EPR Hinkley Point : thermal behavior of mass concrete with high content of GGBS ▶ José MONTALVO, EDF Energy, UK		08 • Typhoon-induced High Wind and External Flooding Hazard Analysis of Nuclear Power Plants ▶ Park JUNHEE, KAERI, Republic of Korea		• How to characterize the airtightness of containment structures. Overview of monitoring techniques tested on VeRCoRs Mock Up ▶ Jean-Marie HENAUULT, Alexis COURTOIS, Pauline LAVIRON, Solenne DESFORGES, Denis VAUTRIN, Benoît MARTIN, Alexis LEGRIX, EDF-R&D / EDF-DPIH DTG / EDF-DI TEGG, France					
	T02-4	82 • On the use of pre-visualization to design and optimize a multi-camera structural test ▶ Renaud GRAS, EikoSim, France		45 • A Probabilistic SSI Analysis of a Basic Nuclear Power Plant Design for Design Extension Condition ▶ Peter RANGELOW, Basler & Hofmann AG, Switzerland		• VeRCoRs digital twin and its tools ▶ François HAMON, Guillaume BOULANT, Charles TOULEMONDE, Jean-Philippe MATHIEU, EDF R&D, France					
	T02-7	34 • Project Lifetime Planning ▶ Julian CARTER, EAT Limited, UK		54 • Remarks on current methods for the evaluation of the seismic capacity of RC walls in nuclear facilities ▶ Sanja HAK, Basler & Hofmann AG, Switzerland		• Appraisal of the benchmark VeRCoRs 2018 ▶ Manuel CORBIN, EDF, France					
	T02-1	79 • Methods and tools for the 3D reinforcement modeling of Hinkley Point C EPR ▶ Véronique REMANDE, EGIS, France				• Conclusions ▶ Nico HERRMANN, Karlsruhe Institute of Technology, Germany					
10:15											
10:35											
10:55											
11:15											
11:35											
11:55											
12:15											
12:30	WELCOME APERITIF • LUNCH TIME										
13:00	TECHNICAL VISITS										
	01:15 - 07:00			02:00 - 06:00			02:00 - 06:00				
	VeRCoRs Mockup			Tamaris + Connexity			Connexity + Tamaris				

THURSDAY 30

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08:30	REGISTRATION		
09:00	Design optimization of nuclear structures – An overview of the next innovative steps to improve constructability Guillaume HERVE-SECOURGEON - Civil Engineering Expert, EDF R&D Amit H. VARMA - Professor and Director of Bowen Lab, Purdue Univ.		
	<p>📍 Amphitheater 1</p> <p>• Earthquake Engineering •</p> <p>Chair: Farhang OSTADAN, BECHTEL</p>	<p>📍 Amphitheater 2</p> <p>• Monitoring •</p> <p>Chair: Yann LE PAPE, ORNL</p>	<p>📍 Auditorium / Special Session</p> <p>• Civil Works Design Optimisation •</p> <p>Chair: Guillaume HERVÉ-SECOURGEON, EDF</p>
10:00	<p>T03-2</p> <p>23 • 3-D Base Control Systems for the Seismic Protection of Structures in a NPP • Daniel SIEPE, GERB, Germany</p>	<p>T01-3</p> <p>24 • Integration of aerial drone and data processing in nuclear power plant visual inspection • Yoann JOBARD, SITES, France</p>	<p>• Design Optimization of RC panels for Nuclear Structures: The ACI based Approach • Saahas BHARDWAJ, Purdue University, USA</p>
10:20	<p>85 • Reactor building 3D seismic isolation: Nuclear safety and cost related issues • Victor KOSTAREV, CVS, Russia</p>	<p>44 • Tunnel monitoring: Performances of several innovative shape sensing systems • Arianna PICCOLO, Andra, France</p>	<p>• Design Optimization of RC panels for Nuclear Structures: The Eurocode based (Sandwich Model) Approach • Carlos SIERRA, Purdue University, USA</p>
10:40	<p>12 • Seismic isolation of nuclear power plants: a case study with non-linear lead rubber bearings (comparison with IAEA's hybrid simulations benchmark) • Pierre-Marie ALLIARD, Tractebel Engie, France</p>	<p>49 • Relevance and means for measuring water content in concrete structures. An illustration with PWR concrete containment • Alexis COURTOIS, EDF, France</p>	<p>• Handling appropriately the reinforcement of massive RC pieces by means of automatized strut and tie method • Gustavo MENDOZA-CHAVEZ – Géodynamique et Structure, France</p>
11:00	<p>94 • Development of Korean Design Code for the Nuclear Power Facilities with Seismic Isolation Systems • Sanghoon LEE, KEPSCO E&C, Republic of Korea</p>	<p>63 • Influence of temperature on porewater pressure measurement by vibrating wire transducers sensors • Guillaume HERMAND, Andra, France</p>	<p>• Q&A</p>
11:20	<p>43 • New Dynamic Decoupling Criteria For Secondary Systems • Thuong Anh NGUYEN, Géodynamique et Structure, France</p>	<p>T01-2</p> <p>93 • Reinforced concrete structures at early age: experiment on massive structures and simplified modelling • Jacky MAZARS, Institut polytechnique de Grenoble, France</p>	
11:40	<p>90 • Transferred signal through a structure within non-linearity using the concept of equivalent linear behavior in seismic engineering • Thuong Anh NGUYEN, Géodynamique et Structure, France</p>	<p>77 • Identification of the parameters of concrete drying constitutive laws: benefit of using profiles in addition to mass loss of samples, application to VerCoRs concrete • Laurent CHARPIN, EDF, France</p>	
12:00	LUNCH TIME		
	<p>📍 Amphitheater 1</p> <p>• Design Optimisation & Transient Dynamics •</p> <p>Chair: Amit H. VARMA, Purdue University</p>	<p>📍 Amphitheater 2</p> <p>• Leaktightness •</p> <p>Chair: Yann LE PAPE, ORNL</p>	<p>📍 Auditorium / Special Session</p> <p>• EQ Eng, Geotechnics & Geodynamics •</p> <p>Chair: Farhang OSTADAN, BECHTEL</p>
01:50	<p>T03-3</p> <p>67 • Advantages of a single thick containment with a metallic liner • Francis BARRÉ, Géodynamique et Structure, France</p>	<p>T01-6</p> <p>95 • Evaluation of aging structural response and leakage rate of Vercors mock-up. Improvements on the numerical model • Thibaud THÉNINT, NECS, France</p>	<p>• Seismic isolation of advanced reactors • Pr. Andrew S. WHITTAKER, University at Buffalo, USA</p>
02:10	<p>04 • Restoring PWR containment wall structural resistance due to equipment penetration • Helder MARANHÃO, Westinghouse Electric, Belgium</p>	<p>29 • Development of a numerical model for studying the leakage tightness evolution of Vercors experimental containment vessel under aging effect • Mahsa MOZAYAN, INGÉROP, France</p>	<p>• Revisiting site response analyses • Alain PECKER, Ponts ParisTech, France</p>
02:30	<p>86 • Improvement of the constructability of non-flexural reinforced concrete structural elements by an automatized S-T-M method • Gustavo MENDOZA-CHAVEZ, ESTP Paris, France</p>	<p>83 • Impact of moderate thermal shock on permeability of partial saturated concrete • Hognon SOGBOSSI, Laboratoire Matériaux et Durabilité des Constructions, France</p>	<p>• Spatial variability & epistemic uncertainty evaluation in site studies • Pr. Pierre LABBÉ, ESTP, France</p>
02:50	<p>T03-4</p> <p>46 • Numerical simulation for the dynamic response of containment under the large commercial aircraft impact • Li ZHONG CHENG, China Nuclear Power Design Compagny, China</p>	<p>55 • Investigations on leakage experiments with a small-scale cracked concrete specimen including fluid structure interaction • Ludwig BAHR, GRS, Germany</p>	<p>• Use of Seismic PRA in ensuring seismic safety of nuclear installations • Dr. Annie KAMMERER, Consultant</p>
03:10	<p>73 • Wavelet analysis of soft impact responses of a reinforced concrete mock-up • Nicolas VACCA, ESTP, France</p>		<p>• Nuclear Waste Disposal in Deep Horizontal Drillholes • Prof. Richard MULLER, Deep Isolation Inc., USA</p>
03:30	COFFEE BREAK		

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THURSDAY 30

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	Amphitheater 1	Amphitheater 2	Auditorium / Special Session
	• Earthquake Engineering •	• Monitoring •	• PhD •
	Chair: Farhang OSTADAN, BECHTEL	Chair: Yann LE PAPE, ORNL	Chair: Cedric GIRY, ENS Paris-Saclay
04:00	39 • Dynamic calculations using substructure method in Ansys and application to EPR Hinkley Point C project • Amanda PARISIS, Tractebel Engie, France	66 • Spatial Resolution Enhancement on Brillouin Fiber-Optic Sensing for Structural Health Monitoring • Vincent LANTICQ, FEBUS OPTICS, France	14 • Zhiyi WANG, EDF Lab Saclay
04:20	22 • A pushover multimodal procedure • Qin FANG, Tractebel Engineering, France	16 • Comparison between SOFO sensors and LVDT associated with invar wires for Nuclear Power Plants monitoring • Jean-Marie HENAUULT, EDF R&D, France	31 • David BOUJITI, Industrial Chair PERENITI
04:40	72 • The Enhanced-Direct Vectorial Approach for multi-modal pushover analysis with multi-component earthquake: torsion analysis of 2 irregular buildings • Miquel HUGUET, EGIS, France	28 • Numerical simulations of ultrasonic wave propagation in concrete for Non Destructive Evaluation applications • Jean-Marie HENAUULT, EDF R&D, France	44 • Arianna PICCOLO, Andra
05:00	47 • Comprehensive Deterministic Seismic Analysis of a Coupled 3D Model of Reactor Building and NSSS • Sunay STÄUBLE AKCAY, NPP Gösen, Switzerland	36 • Numerical modelling & experimental investigations for corrosion state assessment of reinforced concrete structure with the DIAMOND probe • Alexandre BOULE, EDF, France	49 • Vincent GUIHARD, EDF
05:20	96 • Linear equivalent method for robust and efficient seismic margin assessment • Guillaume HERVE-SECOURGEON, EDF R&D, France		81 • Charles CICCARONE, Centrale Lille
05:40	87 • Vector intensity measures for a more accurate reliability assessment of NPP sub-systems • Pierre GEHL, BRGM, France		86 • Gustavo MENDOZA-CHAVEZ, ESTP Paris
06:00			90 • Thuong Anh NGUYEN, Géodynamique et Structure
06:30			
07:00	CONFERENCE RECEPTION & PhD AWARD CEREMONY		

• CONFERENCE RECEPTION • The Equestrian Academy of Versailles

Just in front of the Palace of Versailles, in the Royal Stable, is a magic and underestimated place : the Equestrian Academy of Versailles.

A unique « corps de ballet » in the world, will present a 15- minute show called «Le Carrousel» in the Indoor Arena. Choreography by Bartabas, the elegance and the virtuosity of horses and their riders will transport everyone.

The show will be followed by a welcome drink in the stables and a dinner in the Indoor Arena.

Departure by bus at 07:00 PM from TINCE 2018



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FRIDAY 31

09:00	REGISTRATION					
09:30	Why Fukushima accident happens ? Antonio GODOY - Managing Director, James J. Johnson & Associates					
	Amphitheater 1	Amphitheater 2		Auditorium / Special Session		
	Chair: Farhang OSTADAN, BECHTEL	Chair: Alexis COURTOIS, EDF		Chair: Amit H. VARMA, Purdue University		
	• Earthquake Engineering •	• Monitoring & Crack Prediction •		• Steel Concrete Structures •		
10:30	27 • Seismic Analysis Model for NPP Equipment Considering Concrete-Anchor Connection Details • Yangsu KWON, KHNP CRI, Republic of Korea	26 • Nonlinear Analysis of VerCoRs Mock-Up Containment Structure under High Internal Pressure • Yuxin LIU, Snc Lavalin, Canada		• Summary of past, present, and ongoing work in the US • Amit H. VARMA, Purdue University, USA		
10:50	06 • Toward a model for wall-slab junctions in nuclear reinforced concrete structures: first steps • François VOLDOIRE, EDF R&D, France	T01-4 30 • Explicit analytical modeling of concrete's Thermo-Hydro-Mechanical behavior in Nuclear Containment Buildings. Early-age cracking risk assessment • David BOUJITI, Industrial Chair PERENITI, France		• Fabricator, Erectors perspective from mockup design, detailing, and construction • Simon BINGHAM, Purdue University, USA		
11:10	T03-2 92 • Seismic analysis of reinforced concrete nuclear buildings: comparison of two constitutive models by reference to experiments • François VOLDOIRE, EDF R&D, France	11 • Monitoring of the Jules Horowitz Reactor prestressed Concrete Containment Vessel • Eric PHILIP, CEA Cadarache, France		• Summary of past, present, and ongoing work in the UK • Bassam BURGAN, Steel Construction Institute, UK		
11:30	14 • A Bayesian framework for the computation of seismic fragility curves • Zhiyi WANG, EDF Lab Saclay, France	T01-3 81 • Sonic and Ultrasonic Non Destructive Evaluation of concrete in the VerCoRs mock-up during the pressure tests • Jean-Marie HENAULT, EDF R&D, France		• Design Guide 32 for SC Walls • Saahas BHARDWAJ, Purdue University, USA		
11:50		65 • Non Destructive Evaluation for containment monitoring • Vincent GARNIER, Université Aix Marseille, France		• SCHEDULE PROJECT : The first full Scale Steel Concrete Composite Building in Europe • Julien NIEPCERON, EDF SEPTEN, France		
12:10	LUNCH TIME					
	Amphitheater 1	Amphitheater 2		Auditorium		
	• Earthquake Engineering & Geotechnics •	• Ageing & Irradiation •		• Design & Hazard Assessment •		
	Chair: Farhang OSTADAN, BECHTEL	Chair: Alexis COURTOIS, EDF		Chair: Amit H. VARMA, Purdue University		
01:30	91 • Seismic Response of a Cylindrical Tank Soil-Structure Interaction Model under Different Soil Strata • Yashdev PATEL, Hazama Ando Corporation, Japan	T01-5 60 • Response of reinforced concrete members in neutron irradiation environment • Hyeon-Tae KIM, Yonsei University, Republic of Korea		20 • Design of nuclear safety related concrete structures against hazard combinations: regulatory perspectives on multi-discipline challenges • Leslie SMITH, Office for Nuclear Regulation, UK		
01:50	T03-5 37 • Effects of Nonlinearities on Seismic Soil-Structure-Interaction Behavior of a Nuclear Plant Reactor Building: A Case Study • Payman KHALILI TEHRANI, SC Solutions, Inc., USA	56 • Creep and shrinkage of Intermediate Level Long Life containers concrete: comparison between gamma-irradiated and non-irradiated material • Veronique DEWYNTER-MARTY, CEA, France		21 • RCC-CW 2017 a new revision of AFCEN code dedicated to civil structures toward both safety improvement and cost optimisation • Etienne GALLITRE, EDF, France		
02:10	89 • 3D Modeling of mechanical wave propagation in the soil emanating from the structure • Cristina GALINDO GIMENO, EGIS Industries, France	02 • Study of concrete radiation ageing • Zbynek HLAVAC, Research Centre Rez, Czech Republic		T03-1 71 • Airplane Crash Analysis: Development of Analytical Methods for Simulation of Semi-hard and Hard Projectile Impact • Pascal DISTLER, TU Kaiserslautern		
02:30		Role of electrochemical surface potential and irradiation on garnet-type almandine's dissolution kinetics • Gaurav SANT, UCLA Engineering, USA		70 • Fire Protection Design of PWR Power Plants : from RCC-I to AFCEN RCC-F 2017 • Mickaël CESBRON, EDF, France		
02:50	END OF THE CONFERENCE					

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BIOGRAPHIES

KEYNOTE CHAIRMEN & SPECIAL SESSION SPEAKERS

• Francis BARRÉ •

Born in 1948, graduate Engineer of the “Ecole Nationale des Ponts et Chaussées”, Paris (Class of 1972),

Francis Barré joins the consulting firm Coyne et Bellier in 1974.

He participates in the basic and detailed studies of the French containments (53 containments on 59 in France) and in the studies of the foreign containments with a French design (South-Africa, Korea, China, Finland – 31 containments).

Specialization in prestressed concrete structures, in interpretation of monitoring measurement of concrete structure during the integrity test and during the life and in regulations and nuclear civil works standards.

Participation to the design and follow-up the experimental program of MAEVA Mock-up and of the VERCORS Mock-up.

Current position:

Since 10 years: Professor for the GCN (Nuclear Civil Work) chair in the ESTP and for the Master GOE « Civil Works of structures for the Energy » – Ecole des Ponts Paristech – Ecole Centrale de Paris.

Since 6 years: “Containment Department Manager” in the consulting firm Géodynamique et Structure and in charge of the containment studies of the new project EPR2 and of expertise studies.

• Antonio GODOY •

Mr. Godoy is an expert in the design and safety assessment of nuclear facilities, particularly in aspects related to external events, and in the selection and evaluation of sites.

He graduated with honors from Buenos Aires University and has forty-four years of experience in the nuclear field on both the industry and regulatory sides. In addition, he participated in the design and project management of industrial installations and infrastructure projects in Argentina and Chile.

His professional career has included experience in private engineering and construction companies, independent consultancies and international organizations. Mr. Godoy was with the International Atomic Energy Agency (IAEA) since 1988 as both external expert and staff member for 14 years. In this role, he acted as Scientific Secretary responsible for developing and updating IAEA Safety Standards for selection and evaluation of sites, external hazard assessments and design aspects including protection against sabotage. He organized and lead over one hundred thirty IAEA safety review missions by multidisciplinary expert teams to countries in all parts of the world. At IAEA, he retired in 2010 as Acting Centre Head and founder of the International Seismic Safety Centre, which acted as a global focal point to enhance the safety of nuclear installations against earthquakes and other external events.

His work at IAEA included leading international technical assistance programs supporting a number of member states, and among them it should be highlighted: (1) the support to Armenia for the re-opening the Medzamor NPP in 1995, (2) the support to Japan in relation to the seismic safety evaluation of Kashiwazaki-Kariwa NPP affected by the 2007 Earthquake, and (3) the EU European Community-IAEA-Ukraine Project on the safety evaluation of the 15 WWER type operating units, which was completed in 2010.

For the Fukushima accident, he participated in multiple roles, including: (1) as expert in the IAEA Review Mission to Fukushima Daiichi, Daiini and Tokai NPPs and in the US-EPRI Team to the Daiini NPP immediately after the accident, (2) as Chairman of the 2012 IAEA International Expert's Meeting, and (3) as responsible for the chapter on site related aspects of the Comprehensive Report prepared within the scope of the IAEA Fukushima Action Plan, published in 2015.

In Argentina, he participated in the design and construction of Embalse and Atucha II Nuclear Power Plants. Since 2010, he acts as independent consultant and Managing Director of James J. Johnson & Associates, participating in nuclear installation projects in Indonesia, Argentina, Jordan, Netherlands, EU and Hungary.

• Jacky MAZARS •

After a career at Ecole Normale Supérieure de Cachan (France), from which he graduated (1972), Jacky Mazars joined the University of Grenoble in 2000 to chair the Soils-Structures-Risks Laboratory.

He is currently Professor Emeritus at Grenoble Institute of Technology (France) and Associate Professor at the University of Sherbrooke (Québec-Canada).

Inventor of the concept of damage for concrete, his research work focused mainly on:

- The non-linear behavior of concrete, reinforced or prestressed concrete
- The mechanical effects of maturation in concrete at early ages, with application to mass concretes (dams, nuclear power plants)
- The analysis of the safety of structures for predicting the response of structures under severe loadings (earthquakes, blasts, impacts on structures) and the aging and safety of containment structures.

• Farang OSTADAN •

Ph.D., PE, F. ASCE

Bechtel Fellow and Manager of Earthquake Engineering Center

Farhang Ostadan has more than 30 years' experience in earthquake engineering. As manager of earthquake engineering center for Bechtel Corporation, he has overall responsibility and manages the efforts of a large and diverse group of specialists in locations across the US and around the globe involving major transportation projects, power and energy projects, petrochemical and nuclear projects. He has worked on design on numerous standard nuclear power plant designs including the new modular reactors. Mr. Ostadan has published over 50 technical papers on topics relating to earthquake engineering. He is an active and contributing member of numerous technical committees.

Mr. Ostadan co-developed a method for dynamic soil-structure interaction analysis (SASSI) currently in use by the industry worldwide. He is a frequent lecturer at the universities and research organizations.

Education

Ph.D., Civil Engineering, University of California, Berkeley, 1983

M.S., Civil Engineering, University of Michigan, Ann Arbor, 1978

B.S., Civil Engineering, University of Tehran, Tehran, Iran, 1977

PROFESSIONAL ASSOCIATIONS:

Bechtel Fellow

ASCE Fellow

Member of ASCE 4 committee and responsible for Chapter 5 on SSI

Member of ASCE 43 committee

Chair of ANS 2.2, seismic instrumentation of Nuclear Power Plant Structures

Chairman of SMiRT-22 conference, San Francisco, CA, August 2013.

Member of the Advisory Board for International Association of Structural Mechanics in Reactor Technology (IASMiRT)

President of American Association for Structural Mechanics in Reactor Technology (AASMiRT)

Senior advisor to SMiRT25, August 2019