



# ISOE International Symposium

## Tours, 1 – 3 June 2021



### Provisional Programme



Supported by





## ISOE International Symposium

*Tours, 1-3 June 2021*

The European Technical Centre of the Information System on Occupational Exposure (ISOE) is pleased to organize, in collaboration with and the support of Electricité de France (EDF), the 2021 ISOE International Symposium on Occupational Exposure Management at Nuclear Facilities.

The Symposium will be held in Tours, France, from the 1<sup>st</sup> to the 3<sup>rd</sup> of June 2021. It is co-sponsored by the OECD Nuclear Energy Agency (NEA) and the International Atomic Energy Agency (IAEA).

The Symposium is targeted at all those concerned with radiological protection at nuclear power plants: radiation protection managers and staff members, maintenance and operation planners, contractors, exposed workers, regulatory body representatives and international organisations. It is also opened to research reactors and professionals from other nuclear fuel cycle installations sharing common radiological protection issues.

Dealing with occupational radiation protection at the design, operation and decommissioning stages of installations, as well as accident situations, this new meeting point of radiation protection professionals under the heading of ISOE will be a great opportunity to share, at the international level, experiences and practices favouring a continuous improvement of radiation protection.

Furthermore, the accompanying Technical Exhibition will give participants the opportunity to see the latest developments from industrial and commercial companies active in fields of radiation protection.

Prior to the Symposium, on Monday 31 May 2021, two meetings devoted to specific audiences have been organised:

- A Radiation Protection Managers meeting
- A Regulatory Body Representatives meeting

Finally, a technical visit has been organised to Civaux NPP site on Friday 4 June 2021 that will give you the opportunity to the controlled area and the EDF Nuclear Rapid Response Task Force (FARN).

We are looking forward to welcoming you in Tours,

Caroline SCHIEBER

*Head of ISOE-ETC*

*On behalf of the Programme Committee*



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### PROGRAMME COMMITTEE MEMBERS

|                            |   |
|----------------------------|---|
| <b>Lucie D'ASCENZO</b>     | ISOE ETC, CEPN – France                 |
| <b>Laure-Anne BELTRAMI</b> | ISOE ETC, CEPN – France                 |
| <b>Borut BREZNIK</b>       | Krško NPP – Slovenia                    |
| <b>Aude GENIAUX</b>        | ASN – France                            |
| <b>Monika FÁRNÍKOVÁ</b>    | Temelin NPP – Czech Republic            |
| <b>Swen-Gunnar JAHN</b>    | ENSI – Switzerland                      |
| <b>Timo KONTIO</b>         | Loviisa NPP – Finland                   |
| <b>Jizeng MA</b>           | IAEA                                    |
| <b>Francesco MANCINI</b>   | SOGIN – Italy                           |
| <b>Hans MEIJER</b>         | Borssele NPP – Netherlands              |
| <b>David MILLER</b>        | ISOE NATC, University of Illinois – USA |
| <b>Guy RENN</b>            | Sizewell B NPP – United Kingdom         |
| <b>Caroline SCHIEBER</b>   | ISOE ETC, CEPN – France                 |
| <b>Thorsten STAHL</b>      | GRS – Germany                           |
| <b>Torgny SVEDBERG</b>     | Ringhals NPP – Sweden                   |
| <b>Philippe WEICKERT</b>   | EDF UNIE-GPEX – France                  |

### CONFERENCE LANGUAGE

The conference language will be English.

### SYMPOSIUM VENUE

The Symposium will take place at:

Palais des Congrès de Tours  
26 Boulevard Heurteloup  
37000 Tours



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## DEDICATED MEETINGS – MONDAY 31 MAY 2021

The ISOE Symposium will be preceded by two dedicated meetings devoted to specific audience.

**If you wish to participate to one of those meetings, please contact the relevant person as indicated below in order to register to one of these meetings.**

The registration to these meetings is free of cost.

| Radiation Protection Managers Meeting |  |
|---------------------------------------|--|
| 09:00 - 17:00                         | Location: Palais des Congrès de Tours<br><br><i>Contact-person:</i><br><b>Philippe WEICKERT</b> , EDF – philippe.weickert@edf.fr |

| Regulatory Body Representatives Meeting |  |
|---|--|
| 09:00 - 17:00                           | Location: Palais des Congrès de Tours<br><br><i>Contact-person:</i><br><b>Aude GENIAUX</b> , ASN – aude.geniaux@asn.fr |



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## PROVISIONAL PROGRAMME

### TUESDAY 1 JUNE 2021

|                     |  |
|---------------------|--|
| 08:30 - 09:15       | Registration   |
| 09:15 - 09:45       | Opening Ceremony   |
| <b>Session 1.</b>   | <b>RP at the Design Stage</b>  |
| <b>Chairpersons</b> | <b>C. Schieber (ISOE ETC – CEPN, France), B. Lance (Tihange NPP, Belgium)</b>  |
| 09:45 - 10:05       | RP Assessments and Planning: Competences, Strategy, Processes, Tools<br>S.G. Jahn (ENSI), Switzerland  |
| 10:05 - 10:25       | Corium stabilization case - Sizing of biological protection<br>A. Audineau, Y. Tamagnan (EDF DIPDE), C. Carotta (Tricastin NPP),<br>D. Bouquet, L. Genin (ONET Technologies), France   |
| 10:25 - 10:45       | HPR1000 Model<br><i>to be determined</i>   |
| 10:45 - 11:30       | Coffee-break, Visit of Exhibition, Posters   |
| <b>Session 2.</b>   | <b>RP Indicators</b>   |
| <b>Chairpersons</b> | <b>D. Miller (ISOE NATC, University of Illinois, USA), T. Labarta (CSN, Spain)</b>   |
| 11:30 - 11:50       | Updating the “alpha value” used at EDF - Presentation of the work performed by a dedicated working group<br>T. Jobert (EDF DIPNN DT); X. Descamps (EDF DPN EM); S. Andresz, C. Schieber (CEPN), G. Ranchoux (EDF DP2D); B. Boussetta (EDF DIPDE); J. Bonnefon, P. Ridoux (EDF DIPDE); S. Pומרouly (EDF Lab Paris-Saclay); M.V. Di Giandomenico, M. Hébert (EDF UTO-DLOG); C. Marcillet (EDF UTO-DET); G. Carry, J. Jaubert (EDF UNIE-GPEX), France |
| 11:50 - 12:10       | Improving occupational radiation exposure using ALARA tools: performance indicators<br>A. Nedelcu, L. Samson (Cernavoda NPP), Romania  |
| 12:10 - 12:30       | Dose per RCA-hour; a useful radiological protection indicator?<br>G. Renn (Sizewell B NPP), United Kingdom   |
| 12:30 - 14:00       | Lunch Break  |



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| <b>Session 3. RP Aspects of Post-Accident Situations</b><br><b>Chairpersons</b> <i>A. Geniaux (ASN, France), T. Kontio (Loviisa NPP, Finland)</i> |   |
|---|---|
| 14:00 - 14:30   | Health Effects from the Chernobyl Accident<br>D. Laurier (IRSN), France   |
| 14:30 - 15:00   | Radiation protection status in the NPP of Fukushima<br>T. Suzuki (Chiyoda Technol Corp.), Japan   |
| 15:00 - 15:30   | The role of the radiological protection expert in stakeholder involvement in the recovery phase of post-nuclear accident situations: Some lessons from the Fukushima-Daiichi NPP Accident<br>T. Schneider, M. Maitre (CEPN), France |

|               |   |
|---------------|---|
| 15:30 - 16:15 | <i>Coffee-break, Visit of Exhibition, Posters</i> |
|---------------|---|

| <b>Session 4. Emergency Preparedness at NPPs</b><br><b>Chairpersons</b> <i>P. Weickert (EDF UNIE-GPEX, France), T. Stahl (GRS, Germany)</i> |  |
|---|--|
| 16:15 - 16:35   | Improvement of emergency radiation protection arrangements at the Tihange NPP<br>B. Lance (Tihange NPP, Belgium)   |
| 16:35 - 16:55   | Application of Reference Dose Levels for Radiological Emergencies at Forsmark NPP<br>S. Ahlgren (Forsmark NPP), Sweden                                   |
| 16:55 - 17:15   | Functional exercise Radiology - to accomplish an action in a controlled area during simulated accident conditions<br>A. Ljungberg (Ringhals NPP, Sweden) |

|               |   |
|---------------|---|
| 17:15 - 17:45 | Round Table discussion: ISOE Strategic plan |
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## WEDNESDAY 2 JUNE 2021

|                     |  |
|---------------------|--|
| <b>Session 5.</b>   | <b>Contamination Control</b>   |
| <b>Chairpersons</b> | <b><i>T. Svedberg (Ringhals NPP, Sweden), B. Boyer (Watts Bar NPP, USA)</i></b>  |
| 09:00 - 09:30       | Management of radiological contamination – Feedback experience from several ISOE Utilities<br>E. Lafranque, L.-A. Beltrami, L. Vaillant (CEPN); E. Arial; C. Dabat-Blondeau (EDF UNIE-GPEX), France                                    |
| 09:30 - 09:50       | Impact of Radon on Personal Contamination Monitors at the exit of the RCA in EDF NPPs<br>M. Karst (EDF UNIE-GPEX), C. Cerna, T. Le Noblet, J. Jouve (CNRS IN2P3 CENBG), France   |
| 09:50 - 10:10       | Gamma-Cameras: Feedback on the Experiments carried out at EDF and Perspectives<br>J. Jaubert, M. Lestang (EDF UNIE-GPEX), France   |
| 10:10 - 10:30       | Conclusions from the Radiation Protection Managers and the Regulatory Body Meetings  |
| 10:30 - 11:15       | <i>Coffee-break, Visit of Exhibition, Posters</i>  |
| <b>Session 6.</b>   | <b>Job Experiences (Part I)</b>  |
| <b>Chairpersons</b> | <b><i>G. Renn (Sizewell B NPP, UK), M. Fárníková (Temelin NPP, Czech Republic)</i></b>   |
| 11:15 - 11:35       | Information and Training in Radiation Protection: Regulatory Requirements and Practices<br>S. Andresz (CEPN), P. Weickert (EDF UNIE-GPEX), C. Schieber (CEPN), France  |
| 11:35 - 11:55       | Major Component Replacement & Virtual Reality Training Initiative<br>C. Pritchard (Bruce Power), Canada  |
| 11:55 - 12:15       | Blayais NPP (France) Drain Pipe Event<br>J. Bonnefon, L. Bertrand, P. Morvan, L. Lacarelle, B. Sueur (EDF DIPDE);<br>H. Caullier (Blayais NPP); T. Inoue, Y. Yamashita (MHI); L. Bottero, C. Ringenbach,<br>G. Delcros (ENDEL), France |
| 12:15 - 12:35       | The Practices and Researches of HYH Plant Optimized Radiation Protection<br>G. Song Guohua, W. Xie (Hongyanhe NPP), China<br><i>Distinguished paper at 2019 Beijing ISOE Symposium</i>   |
| 12:30 - 14:00       | <i>Lunch Break</i>   |



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| <b>Session 7.</b>   | <b>Job Experiences (Part II)</b>   |
|---------------------|--|
| <b>Chairpersons</b> | <i>X. Descamps (EDF DPN-EM, France), S.-G. Jahn (ENSI, Switzerland)</i>  |
| 14:00 - 14:20       | Practical Implications of the New Dose Limit to the Lens of the Eye at Forsmark NPP<br>A.-K. Eriksson, A.-S. Gustafsson (Forsmark NPP, Sweden) |
| 14:20 - 14:40       | ALARA in Repair of Reactor Vessel Flange Surface at Krško NPP<br>B. Breznik (Krško NPP), Slovenia  |
| 14:40 - 15:00       | Radiological Safety Aspects of Boral Plate Analysis on Watts Bar Spent Fuel Rack Coupons<br>B. Boyer (Watts Bar NPP), USA                      |
| 15:00 - 15:20       | Improvements in radiological controls for Cavity Decontamination at Sizewell B<br>R. Parlone (Sizewell B NPP), United Kingdom                  |
| 15:20 - 15:40       | Case Report of Incident with High Exposure of Radiation<br>J. Isokivelä (Forsmark NPP), Sweden   |
| 15:40 - 16:25       | <i>Coffee-break, Visit of Exhibition, Posters</i>  |

| <b>Session 8.</b>   | <b>New RP Technologies</b>  |
|---------------------|---|
| <b>Chairpersons</b> | <i>G. Song (Hongyanhe NPP, China), C. Pritchard (Bruce Power, Canada)</i>   |
| 16:25 - 16:45       | NextGen RP: Applying Remote and Automated Technologies to Enhance and Optimize Nuclear Power Plant Radiation Protection Operations<br>K. Kim, P. Tran, D. Cool (EPRI), USA  |
| 16:45 - 17:05       | Radiochromic films for dosimetry<br>S. Pומרouly, C. Monier (EDF Lab Paris-Saclay); M. Ben Hassine (EDF Lab Renardières Ecuelles); D. Grande, T.T.T. Nguyen (UPEC - Institut de Chimie et des Matériaux Paris-Est), France |
| 17:05 - 17:25       | Remote Radiation Protection Monitoring System (RPMS)<br>Y. Yao, L. Su, Z. Zhang, X. Wan (Daya Bay NPP), China   |
| 19:30               | <b>Symposium Dinner</b>   |





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## THURSDAY 3 JUNE 2021

|                     |   |
|---------------------|---|
| <b>Session 9.</b>   | <b>RP and Decommissioning</b>   |
| <b>Chairpersons</b> | <b><i>F. Mancini (SOGIN, Italy), K. Honjo (ISOE-ATC – NSRA, Japan)</i></b>  |
| 09:00 - 09:20       | Key lessons learned from the ISOE WGDECOM Lyon meeting<br>L.A. Beltrami (ISOE-ETC – CEPN), G. Ranchoux (EDF DP2D), France   |
| 09:20 - 09:40       | Decommissioning project, management and planning aspects for the decommissioning of Research Reactor Ispra1<br>E. Amoroso, F. Mancini, D. Manes, A. Paratore, E. Grossi, S. Ravera (SOGIN), Italy   |
| 09:40 - 10:00       | Sand Filter Tank Dismantling at Bugey 1<br>G. Ranchoux, P.-L. Drevet, C. Genty (EDF DP2D), France   |
| 10:00 - 10:20       | Radiological investigations in hard-to-access zones during D&D operations by remote OSL/FO dosimetry<br>S. Magne, M. Horpin (CEA LIST - Laboratoire Capteurs Fibres Optiques), W. Husson (CEA LIST - Laboratoire Capteurs Architectures Electroniques); S. Dogny (ORANO); P.G. Allinei, O. Guéton, M. Ledieu (CEA DEN - DTN-SMTA-LMN), B. Leibovici (SDS Group), France |
| 10:20 - 11:05       | <i>Coffee-break, Visit of Exhibition, Posters</i>   |
| <b>Session 10.</b>  | <b>Source-Term Management</b>   |
| <b>Chairpersons</b> | <b><i>B. Breznik (Krško NPP, Slovenia), G. Ranchoux (EDF DP2D, France)</i></b>  |
| 11:05 - 11:25       | Chemical Engineering Perspective on PWR/BWR Colloid Removal to Reduce CRE and Mitigation of No. 1 Seal Failure for PWR Reactor Coolant Pumps<br>P. Robinson ((n,p) Energy, Inc.), D. Hultquist (DC Cook NPP), R. Penney (Prairie Island NPP), R. Gerdus (Vermont Yankee NPP), USA   |
| 11:25 - 11:45       | ALARA tools: Source Term Control at CNE Cernavoda<br>C. Chitu, A. Nedelcu (Cernavoda NPP), Romania  |
| 11:45 - 12:05       | Impacts of Ag-110m on Radiation Field Generation: Review of an innovative experiment<br>E. Moleiro, A. Rocher (EDF UNIE-GPEX); T. Tribollet (Civaux NPP), France  |
| 12:05 - 12:25       | Feedback Experiences on Large Scale & Radiation Protection Management<br>R.I. Ahmad (Chasma NPP), Pakistan  |
| 12:25               | Distinguished Papers and Closure of the Symposium   |



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## FRIDAY 4 JUNE 2021

### Technical Visit (optional)

A technical visit is organised (full day) to the **Civaux NPP** with:

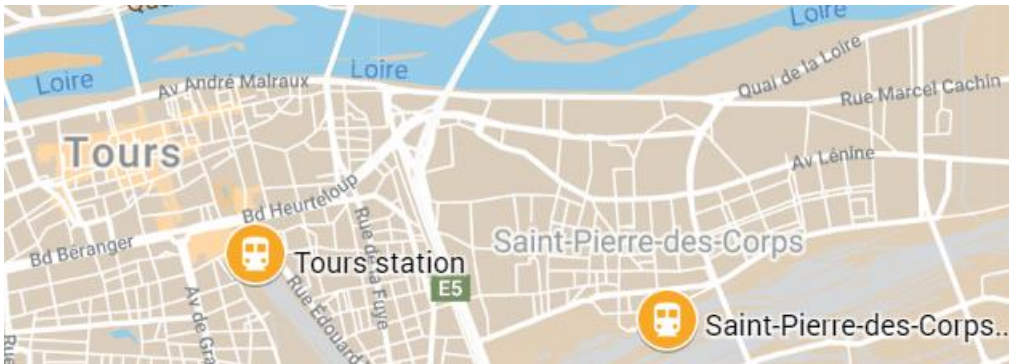
- Visit of Civaux unit 1 or 2 controlled area
- EDF Nuclear Rapid Response Task Force (FARN)

The bus departures and arrivals will be announced later on the ISOE Network website and to the registered participants. The participation is subject to availability as the visit is restricted to a limited number of persons.

## HOW TO GET TO TOURS?

Tours is located at about 250 km from Paris.  
The high-speed train TGV is the fastest way to get to Tours.

There are 2 Railway Stations: Tours Centre and Saint-Pierre-des-Corps



Journey time:

- From Paris to Tours Centre: 1h10
- From Paris Charles de Gaulle Airport to Saint-Pierre-des-Corps: 1h45

## REGISTRATION TO THE SYMPOSIUM

|                  | Registration Fees   | Online Registration                     |
|------------------|---------------------|---|
| Participant      | 500 € VAT included  | <a href="#">Registration form</a>       |
| Commercial Booth | 2000 € VAT included | <a href="#">Booth Registration form</a> |

**Payment of the fees must be done after online registration and receipt of the invoice**

Information can also be found on ISOE website: [www.isoe-network.net](http://www.isoe-network.net)