

## DigiDecom 2021 – DIGITAL

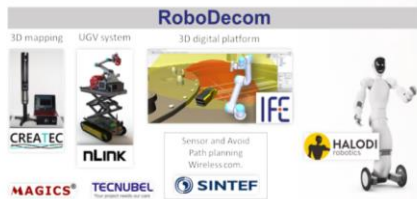
Online international workshop focusing on digital transformation, robotics and other game changing trends in nuclear decommissioning



\*Decommissioning includes waste management and environmental remediation



The 2021 workshop will support and disseminate results from the SHARE [www.Share-h2020.eu](http://www.Share-h2020.eu) PLEIADES [pleiades-platform.eu](http://pleiades-platform.eu) and PREDIS [predis-h2020.eu](http://predis-h2020.eu) Horizon 2020 projects



**RoboDecom** [ife.no/robodecom/](http://ife.no/robodecom/) and **LiveDecom** [ife.no/livedecom/](http://ife.no/livedecom/) Norwegian funded international projects

DigiDecom 2021 will also support the NEA's EGRRS Expert Group on the application of Robotics and Remote-Systems in the nuclear back end

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## Monday - 22 March: Welcome virtual get-together (late afternoon before the first day)

16:00 Virtual welcome for getting to know each other and test connection. Introduction of the chairs, group discussion moderators and all other participants.

Link: [Click here to join the meeting](#)

## Tuesday - 23 March: Innovation needs, solutions and initiatives

11:00 Participants Admission

11:30 Welcome on behalf of IFE (IFE CEO / Tomas Nordlander and István Szőke), IAEA (Vladimir Michal), NEA (Martin Brandauer), OECD HTO (Andreas Bye), VTT (Erika Holt), CEA (Christine Georges) and presentation of the program (Réka Szőke)  
*Topical presentation from NEA and EPRI will be on Thursday*

### Session 1: International landscape of innovation for nuclear decommissioning and waste management – introductory presentations from organizers and invited speakers *Chairs: Vladimir Michal and Christine Georges (CEA)*

11:50 Opening Remarks by Session Chairs

12:00 IAEA perspectives and supported innovation initiatives  
*Patrick O’Sullivan – IAEA*

12:20 IAEA decommissioning status and its approach for the digitalization  
*Dr. Taruta Yasuyoshi and Dr. Yukihiro Iguchi – IAEA, Japan*

12:40 International needs and opportunities for innovation  
*István Szőke – IFE, Norway*

13:00 Presentation of the PREDIS project on predisposal waste management  
*Erika Holt – VTT, Finland*

13:20 *20 min Break*

13:40 Decommissioning in Norway – foreseen challenges and related innovation needs  
*Martin Andreasson / Peter Keyser – NND, Norway*

14:00 Overview presentation of the PLEIADES project on PLatform based on Emerging and Interoperable Applications for enhanced Decommissioning processes  
*Caroline Chabal – CEA, France*

14:20 Needs and trends for innovation of decommissioning in the Oil & Gas sector.  
*Craig Nicol – OGTC, UK*

14:40 Overview of the Sustainable Nuclear Energy Technology Platform (SNETP)  
*Anthony Banford (NNL)*

14:50 *20 min Break*

### Session 2: Presentation of result from the “SHARE” EU project on a roadmap for decommissioning R&D priorities

*Chairs: Christine Georges (CEA) and Patrick O’Sullivan (IAEA)*

*Presentations will be 15 minutes each. Presenters are requested to facilitate interactivity (ask questions from audience, allow questions during presentation, ...)*

15:10 Presentation of results from the “SHARE” EU project: a roadmap to enhance collaborative Research activities for Decommissioning  
*Christine Georges – CEA, France*

15:30 Analysis of results from stakeholders survey about importance and urgency of needs in Research for decommissioning  
*Gintautas Poškas – LEI, Lithuania and Laura Aldave de las Heras – JRC*

15:50 Implementation of gap analysis between needs and existing solutions / international initiatives  
*Anthony Banford- NNL, UK*

16:10	<p><b>Discussion of innovation needs and possible solutions</b></p> <p><b>Chairs</b> present of the objectives of the group sessions</p> <p><b>Breakout into groups:</b></p> <p><b>Group moderators</b> shortly present thematic areas and related outcomes from SHARE gap analysis, for discussion and additional proposals.</p> <p>Group 1 Safety / radiological protection aspects, environmental remediation, and site release Moderators: Réka Szőke (IFE) and Anumaija Leskinen (VTT)</p> <p>Group 2 Project management, costing and human resource management Moderators: Fanny Fert (CEA) and Lucas Stephane (IFE)</p> <p>Group 3 Characterization Moderators: Laura Aldave de las Heras (JRC) and Kurt van den Dungen (SCK-CEN)</p> <p>Group 4 Site preparatory activities and Technologies for dismantling operations Moderators: Junaid Chaudhry (KIT) and Frederica Pancotti (SOGIN)</p> <p>Group 5 Management of materials and waste from decommissioning Moderators: Anthony Banford (NNL) and Christine Georges (CEA)</p>
17:10	<p>Short summaries from the group discussions presented in Plenary by the Moderators (5 min each) &amp; Plenary Discussion</p> <p>Moderators and Session Chairs</p>
17:50 –	Final remarks of the Session Chairs
18:00	<i>Christine Georges and Patrick O’Sullivan</i>
<p><b>Wednesday - 24 March: Innovation needs, solutions and initiatives related to digital transformation of decommissioning and waste management</b></p> <p>Chairs: Erika Holt (VTT) and Ole Jakob Ottestad (NND)</p>	
<p><b><u>Surveys by the PLEIADES project related to use of digital models in decommissioning</u></b></p> <p><a href="http://pleiades-platform.eu/2021/01/13/pleiades-survey/">http://pleiades-platform.eu/2021/01/13/pleiades-survey/</a></p>	
11:00	Participants Admission
11:30	Opening Remarks by Session Chairs
11:40	<p>NND on a journey towards digital decommissioning and waste management</p> <p><i>Ole Jakob Ottestad – NND, Norway</i></p>
12:00	<p>Digital transformation of decommissioning</p> <p><i>István Szőke – IFE, Norway</i></p>
12:20	<p>Computational personal dosimetry using flexible phantoms and staff tracking: possible applications in decommissioning</p> <p><i>Filip Vanhavere and Pasquale Lombardo – SCK-CEN, Belgium</i></p>
12:40	<p>Towards an international nuclear decommissioning ontology – Results from work in PLEIADES and co-operation among IAEA collaborating centres</p> <p><i>Franz Borrmann – iUS, Germany</i></p>
13:00	<p>Technical aspects of digital integrated decommissioning support systems and prospects with ISDC (International Structure for Decommissioning Costing of Nuclear Installations) based costing</p> <p><i>Dusan Daniska – WAI (Aquila Costing), Slovakia</i></p>
13:20	<p>3D Digital Simulation of complex D&amp;D projects - Use case: Chinon A2 dismantling project</p> <p><i>Paola Ontiveros – Cyclife Digital Solutions, France</i></p>
13:40	<i>20 min Break</i>
14:00	<p>How BIM is used in the construction industry – prospects for use in nuclear decommissioning</p> <p><i>Dag Fjeld Edvardsen et. al. – Catenda, Norway</i></p>
14:20	<p>Digital transformation – A TSO point of view</p> <p><i>Patrice François – IRSN, France</i></p>

14:40	How digital models and simulation are used by the Norwegian and Russian regulatory bodies in legacy management <i>Malgorzata Sneve – DSA, Norway</i>
15:00	Up-to-date view of the site improves project performance – user study of Fortum's eSiteview in decommissioning <i>Jere Luukkanen and Miko Olkkonen – Fortum Power and Heat Oy, eSite</i>
15:20	Towards digital tools for waste package and facility monitoring and prediction <i>Ernst Niederleithinger – BAM, Germany</i>
15:40	A new IAEA Technical Document on Occupational Radiation Protection in Decommissioning of Nuclear Installations - Main Aspects of Management, Planning and Conduct <i>Burcin Okyar - IAEA</i>
16:00	20 min Break
16:20	<p><b>Discussion of innovation needs and possible solutions related to digital transformation of decommissioning</b></p> <p><b>Chairs</b> present of the objectives of the group sessions</p> <p><b>Moderators</b> shortly present the topic of their group and some food for thought (e.g. outcomes from PLEIADES)</p> <p><b>Breakout to groups:</b></p> <p>Group 1 Regulatory/TSO aspects for use of BIM based of modular integrated software systems Moderators: Patrice Francois and Malgorzata Sneve</p> <p>Group 2 Technical barriers and needs for implementation BIM based of modular integrated software systems Moderators: Dušan Daniška, Dag Fjeld Edvardsen and Ole Jakob Ottestad</p> <p>Group 3 Human and organisational barriers and needs for implementation of BIM and digital twin based support systems for decommissioning and waste management Moderators: Erika Holt, Martin Andreasson and José Antonio R Cabrerizo (KIT)</p> <p>Group 4 International nuclear decommissioning ontology Moderators: Franz Borrmann and Maarten Becker (iUS)</p> <p>Group 5 Use of digital models and simulations for international knowledge exchange Moderators: Patrick O'Sullivan and István Szőke</p> <p><i>Moderators will steer discussions and prepare final summary report from the session. Mural rooms will be used for collecting and summarizing input from the participants.</i></p> <p><b>Instruction for moderators:</b> Focus on identifying user requirements (and, possibly, associated tech requirements) for use of 3D digital modes.</p>
17:20 – 18:00	Short summaries from the group discussions presented in Plenary by the Moderators (5 min each) & Plenary Discussion <i>Moderators and Session Chairs</i>
18:00 – 18:15	Final remarks of the Session Chairs <i>Erika Holt and Ole Jakob Ottestad</i>
<p><b>Thursday - 25 March: Innovation needs, solutions and initiatives related to digitalisation as well as robotics and remote systems in decommissioning</b></p> <p>Chairs: Vladimir Lebedev (NEA) and Martin Brandauer (NEA)</p>	
<p><i>Surveys of the NEA Expert Group on the Application of Robotics and Remote Systems in the Nuclear Back-end (EGRRS):</i></p> <p>1. <b>STATUS OF CURRENT TECHNOLOGIES AND USES / DEFINE TERMINOLOGY:</b> <a href="https://www.surveymonkey.com/r/EGRRS-STATUS">https://www.surveymonkey.com/r/EGRRS-STATUS</a> (Password: OeCD-NeA_202*)</p> <p>2. <b>BARRIERS / IMPEDIMENTS</b> <a href="https://ec.europa.eu/eusurvey/runner/EGRRSBarriers">https://ec.europa.eu/eusurvey/runner/EGRRSBarriers</a> (Password: Oecd202*)</p> <p><i>A participation in advance of the meeting would be appreciated.</i></p>	
11:30	Participants Admission
11:50	Opening Remarks by Session Chairs



12:00	Robotics and Remote Systems applications in the Decommissioning and Radioactive Waste Management - The NEA EGRRS (Expert Group on the application of Robotics and Remote-Systems in the nuclear back end) <i>Rustam Stolkin, University of Birmingham and NEA-EGRRS Chair, UK</i>
12:30	Robotics and 3D gamma mapping technologies for supporting nuclear decommission <i>Matt Mellor – CREATEC, UK</i>
12:50	Digital innovation for robotics applications in decommissioning <i>István Szőke – IFE, Norway (member of EGRRS)</i>
13:10	Modular unmanned and humanoid robot platform based technology – prospects for application in nuclear decommissioning <i>Nasser Ukla – IFE, Tomas Henninge – nLink, Bernt Øivind Børnich/ Egil Utheim – Halodi robotics, Norway</i>
13:40	Robotics research and applications by Florida International University (FIU) <i>Leonel Lagos, FIU, US</i>
14:00	The use of Robotics and Remote Equipment in International Projects implemented at Chernobyl NPP <i>Norbert Molitor – PLEJADES GmbH, Germany, Valeriy Seyda, Sergiy Kondratenko – Chernobyl NPP, Ukraine and Cécile Javelle – PLEJADES GmbH, Germany</i>
14:20	Economic drivers for robotic and remote systems in decommissioning (including FREMES example) <i>Eduard Nikitin, ROSATOM, Russian Federation, and Norbert Molitor – PLEJADES GmbH, Germany</i>
14:40	Robotic fragmentation of large equipment at decommissioning of NPPs <i>Ladislav Vargovcik, Jozef Varga, Jan Semjon – TUKE, Slovak Republic</i>
15:00	20 min Break
15:20 – 16:20	<p><b>Discussion of innovation needs and possible solutions related to robotics applications in decommissioning</b></p> <p><b>Chairs</b> present of the objectives of the group sessions and the required background information</p> <p><b>Breakout to groups:</b></p> <p><b>Each moderator</b> will provide a short teaser presentation within their group</p> <p>Group 1 Implementation barriers based on experience with application of robotics Moderators: Rick Reid (EPRI), Leonel Lagos and Laurent Velnom (EC)</p> <p>Group 2 Safety and security requirements for robotics applications in decommissioning Moderators: Michael Knaack, Matthias Schoepfer (TüV Nord)</p> <p>Group 3 Digitalisation and robotics – how can they strengthen/enable each other? Moderators: Rustam Stolkin, István Szőke and Matt Mellor</p> <p>Group 4 Economic benefit drivers for robotics applications in the nuclear Moderators: Eduard Nikitin and Norbert Molitor</p> <p><i>Moderators will steer discussions and prepare final summary report from the session. A moderator will capture comments with on-line sharing of their screen.</i></p> <p><b>Instruction for moderators:</b> Touch upon each group topic in the summaries if input is provided. <i>Highlight suggestion for EGRRS group if proposals are provided.</i></p>
16:20	Short summaries from the group discussions presented in Plenary by the Moderators (5 min each) & Plenary Discussion Moderators and Session Chairs
17:05 – 17:20	Final remarks of the Session Chairs Vladimir Lebedev and Martin Brandauer, NEA