



54<sup>th</sup> Annual Meeting on Hot Laboratories and Remote Handling

# HOTLAB 2017

17-22 September, 2017, Mito, Japan

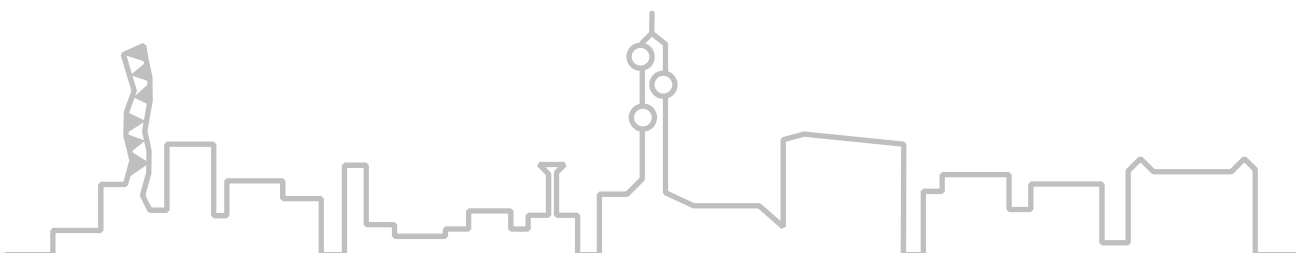
In cooperation with the  
Atomic Energy Society of Japan



In cooperation with the  
International Atomic Energy Agency



Venue: Mito Keisei Hotel, 2nd floor  
Technical sessions: meeting room "RURI"  
Registration desk and exhibitions: RURI Foyer



# Conference Program

## Sunday, 17 Sep. 2017

15:00–19:00	Conference Registration	RURI Foyer
17:30–19:00	Welcome Reception	RURI

## Monday, 18 Sep. 2017

8:30–9:00	<i>Conference Registration</i>		RURI Foyer
9:10–10:40	<b>Opening session</b> Session chair: K. Minato (JAEA)		
9:00–9:10	Welcome and Opening Remarks		Y. Miura (JAEA)
9:10–10:40	<b>Post-Fukushima special session - #1</b> Session chairs: K. Minato (JAEA), A. Leenaers (SCK•CEN)		
9:10–9:40	<b>F-01</b>	Decommissioning of 1F – current status and plan	N. Saito (TEPCO)
9:40–10:00	<b>F-02</b>	Contributions to the decommissioning of Fukushima Daiichi Nuclear Power Station by JAEA Naraha Remote Technology Development Center	H. Daido (JAEA)
10:00–10:20	<b>F-03</b>	The outline of Japan Atomic Energy Agency's Okuma Analysis and Research Center (1) - The total progress of Laboratory-1 and Laboratory-2 -	T. Inoue (JAEA)
10:20–10:40	<b>F-04</b>	Hot cell investigation of irradiated fuel debris from the Three Mile Island unit 2 (TMI-2) reactor	D. Bottomley (JRC)
10:40–10:55	<i>Coffee Break</i>		RURI Foyer
10:55–12:35	<b>Post-Fukushima special session - #2</b> Session chairs: TBD, M. Osaka (JAEA)		
10:55–11:15	<b>F-05</b>	Revisiting the TMI-2 core melt specimens to verify the simulated corium for Fukushima Daiichi NPS	M. Takano (JAEA)
11:15–11:35	<b>F-06</b>	Collaborative R&D for advanced remote analysis using pulse laser ablation and related technologies	A. Nishimura (JAEA)
11:35–11:55	<b>F-07</b>	Radiochemical analysis of rubble collected from around and inside reactor buildings at Units 1 to 4 in Fukushima Daiichi Nuclear Power Station	Y. Sato (JAEA)
11:55–12:15	<b>F-08</b>	Severe accident research activities at the CEA: Methodology and main insights related to source term quantification and fuel behavior	O. Dugne (CEA)
12:15–12:35	<b>F-09</b>	International collaborations at JAEA/CLADS toward decommissioning of Fukushima Daiichi NPP	T. Washiya (JAEA)
12:35–13:40	<i>Lunch</i>		RURI
13:40–15:40	<b>HOTLAB operation - #1</b> Session chairs: TBD, T. Washiya (JAEA)		
13:40–14:00	<b>O-01</b>	Impact of the Fukushima Daiichi(1F) accident on the nuclear installations in Petten, NL	P. Thijssen (NRG)
14:00–14:20	<b>O-02</b>	Damage on the JMTR hot laboratory by the 2011 earthquake off the Pacific coast of Tohoku	A. Shibata (JAEA)

14:20–14:40	<b>O-03</b>	Current status of the Irradiated Materials Characterization Laboratory at INL with limited PIE microstructural characterization	B. Miller (INL)
14:40–15:00	<b>O-04</b>	Post-irradiation examination capabilities of IMEF M1 Hot Cell	Y.J. Kim (KAERI)
15:00–15:20	<b>O-05</b>	Overview and current status of the experimental capacity of the LECI hotlab facility	C. Blandin (CEA)
15:20–15:40	<b>O-06</b>	Overview and status of the US Nuclear Science User Facilities (NSUF)	J. Kennedy (INL)
15:40–16:00	<i>Coffee Break</i>		RURI Foyer
<b>Waste and storage</b> Session chairs: O. Dugne (CEA), TBD			
16:00–16:20	<b>W-01</b>	Multirecycling plutonium in fast neutron reactor: Advanced design in ASTRID fuel cladding	M. Gennisson (CEA)
16:20–16:40	<b>W-02</b>	Research and operational activities on waste management and decommissioning at JRC Karlsruhe and Ispra	V.V. Rondinella (JRC)
16:40–17:00	<b>W-03</b>	Experimental setup for hydraulic resistance measurements on spent nuclear fuel	G. Cornelis (SCK-CEN)
17:00–17:20	<b>W-04</b>	Safe reconditioning of nuclear fuels stored underwater	S. Milesi (CEA)
17:20–17:40	<b>W-05</b>	Lessons learned construction from DIADEM medium-level waste interim storage's	H. Lagrave (CEA)
17:40–18:00	<i>Photo Session</i>		RURI
19:00–20:40	<i>Conference Dinner</i>		RURI

## Tuesday, 19 Sep. 2017

8:30–	<i>Registration Desk Open</i>		RURI Foyer
<b>HOTLAB operation - #2</b> Session chairs: M. Streit (PSI), K. Kurosaki (Osaka Univ.)			
9:00–9:20	<b>O-07</b>	UKAEA Materials Research Facility, into full operation	M. Jong (UKAEA)
9:20–9:40	<b>O-08</b>	Operational experience in hot cell transfer systems at Radio Metallurgy Laboratory	T. Ulaganathan (IGCAR)
9:40–10:00	<b>O-09</b>	BATAN - IAEA cooperation in the program of Decontamination and Post Irradiation Examination (PIE) in Radiometallurgy Installation Hot Cell - BATAN	B. Briyatmoko (BATAN)
10:00–10:20	<b>O-10</b>	Maintenances of the hot laboratory without operation of the system of air supply and exhaust	N. Nakamura (JAEA)
10:20–10:40	<i>Coffee Break</i>		RURI Foyer
<b>Facilities and equipment - #1</b> Session chairs: TBD, J. Buckle (Merrick)			
10:40–11:00	<b>E-01</b>	Facility development at JRC Karlsruhe for mechanical integrity assessment of fuel rods in view of transport and handling	J. Somers (JRC)
11:00–11:20	<b>E-02</b>	The ESS Active Cells Facility construction and design update	M. Gohran (ESS ERIC)
11:20–11:40	<b>E-03</b>	Fabrication and installation of VTT's new hot cells	W. Karlsen (VTT)

11:40–12:00	<b>E-04</b>	Materials Analysis and Characterization Building, a new facility for observation of structural and fuel cladding materials of nuclear power plants	T. Sonoda (CRIEPI)
12:00–13:10	<i>Lunch</i>		RURI
<b>Facilities and equipment - #2</b> Session chairs: B. Miller (INL), TBD			
13:10–13:30	<b>E-05</b>	The Hot cells ready – first results	O. Srba (CVR)
13:30–13:50	<b>E-06</b>	Shielded Focused Ion Beam Field Emission Scanning Electron Microscope (FIB-FE-SEM): Evaluation, technical modification and implementation	R. Brüttsch (PSI)
13:50–14:10	<b>E-07</b>	Gained experience on the development of equipments used in high-activity cells	S. Martin-Vignerte (CEA)
14:10–14:30	<b>E-08</b>	Development of metal corrosion testing method simulating equipment of reprocessing of spent nuclear fuels	M. Matsueda (JAEA)
14:30–14:50	<i>Coffee Break</i>		RURI Foyer
<b>Remote handling technology - #1</b> Session chairs: V.V. Rondinella (JRC), A. Nishimura (JAEA)			
14:50–15:10	<b>R-01</b>	ESS Shielded casks' preliminary design and related monolith maintenance operations	L. Astrom (FIAB)
15:10–15:30	<b>R-02</b>	Remote target handling and radioactive isotope collection and handling for CERN's MEDICIS Facility	K. Kershaw (CERN)
15:30–15:50	<b>R-03</b>	Virtual X-ray vision by 3D scene reconstruction for work in nuclear containment	G.-J. Wei (UNSW)
15:50–16:10	<b>R-04</b>	An approach for remote nondestructive testing method for concrete structure using laser-generated ultrasonic	A. Furusawa (JAEA)
16:10–16:30	<i>Coffee Break</i>		RURI Foyer
<b>Poster short presentations</b> Session chair: TBD			
	<ul style="list-style-type: none"> <li>- All the poster presenters give two minutes short presentation with a slide (no more than 1 slide), which shows outline and highlight of the poster.</li> <li>- Questions and answers should not be made in this session but in the Poster session.</li> </ul>		RURI
<b>Poster session</b>			
	<ul style="list-style-type: none"> <li>- Posters should be set up on the board indicated with presentation number (P-xx) during lunch break on Tuesday 19.</li> <li>- Poster presenters are due for explanation and discussion on their posters.</li> <li>- Refreshments will be served during the session.</li> </ul>		RURI

### Wednesday, 20 Sep. 2017

8:30–	<i>Registration Desk Open</i>		RURI Foyer
<b>Remote handling technology - #2</b> Session chairs: L. Astrom (FIAB), T. Ogata (CRIEPI)			
9:00–9:20	<b>R-05</b>	Automation testbed for remote basket handling in a hot cell	D. Ryu (KAERI)
9:20–9:40	<b>R-06</b>	Automated device for pressure tube samples collect for hydrogen concentration determination in pile	S. Ionescu (ICN)

9:40–10:00	<b>R-07</b>	A 21st century remote manipulator: the MT200 TAO programme -Experience feedback and future perspectives	A. Guyot (Gétinge La Calhène)
10:00–10:20	<b>R-08</b>	Additional payable safety features for remote handling technologies	J. Hedstueck (Wälischmiller)
10:20–10:40	<i>Coffee Break</i>		RURI Foyer
<b>Post-irradiation examination - #1</b> Session chairs: D. Gavillet (PSI), M. Hirai (NFD)			
10:40–11:00	<b>I-01</b>	Spallation material preparation using the hotcell facility, a new preparation box and focused ion beam for investigations from mechanical testing up to methods using synchrotron light	M.A. Pouchon (PSI)
11:00–11:20	<b>I-02</b>	Cleaning of failed Lead containing Zircaloy-2 Neutron Spallation Target Rods with a Dissolution Process	R. Zubler (PSI)
11:20–11:40	<b>I-03</b>	Post-irradiation Examination Using TEM Method for Swelling Evaluation of Baffle Plate in PWR Core Internals	K. Fujimoto (NDC)
11:40–12:00	<b>I-04</b>	Shear Punch Testing of Irradiated Cladding Materials from BOR-60 Irradiations	T. A. Saleh (LANL)
12:00–12:20	<b>I-05</b>	In situ Raman spectroscopy on nuclear materials in hot cell	S. Miro (CEA)
12:20–13:30	<i>Lunch</i>		RURI
<b>Post-irradiation examination - #2</b> Session chairs: Z.L. Peng (McMaster Univ.), TBD			
13:30–13:50	<b>I-06</b>	ND-PIE on MTR fuel plates at SCK·CEN: a comparison with destructive analysis	Y. Parthoens (SCK/CEN)
13:50–14:10	<b>I-07</b>	Application of FE-SEM to the measurement of U, Pu, Am in the irradiated MA-MOX fuel	S. Sasaki (JAEA)
14:10–14:30	<b>I-08</b>	Post irradiation examination of fuel bundle from 540 MWe Pressurized Heavy Water Reactor (PHWR) of TAPS-3	J.L. Singh (BARC)
14:30–14:50	<b>I-09</b>	Analysis of fission gases released in the void volume of irradiated CANDU type nuclear fuel	M. Mincu (ICN)
14:50–15:10	<i>Coffee Break</i>		RURI Foyer
<b>Post-irradiation examination - #3</b> Session chairs: Z.L. Peng (McMaster Univ.), TBD			
15:10–15:30	<b>I-10</b>	Microstructure Analysis of Irradiated NUE and NU Fuel in NPIC Hot Cells	Z. Fang (NPIC)
15:30–15:50	<b>I-11</b>	Spherical Fuel Element Deconsolidation System in INET	H. Zhao (Tsinghua Univ.)
<b>Closing session</b> Session chair: K. Minato (JAEA)			
	Awards for Best Presentation and Best Poster		
	Next HOTLAB Meeting; HOTLAB 2018		
	Closing remarks		K. Minato (JAEA)

## List of Poster Presentations

<b>P-1</b>	The outline of Japan Atomic Energy Agency's Okuma Analysis and Research Center (3) - Laboratory-2 -	M. Ito (JAEA)
<b>P-2</b>	Electrochemical corrosion tests for core materials utilized in BWR under conditions containing seawater	Y. Shizukawa (JAEA)
<b>P-3</b>	Development of analytical methods for radioactive waste samples from TEPCO Fukushima Daiichi Nuclear Power Station site at JAEA Okuma Analysis and Research Center	S. Sato (JAEA)
<b>P-4</b>	The outline of Japan Atomic Energy Agency's Okuma Analysis and Research Center (2) - Laboratory-1 -	Y. Sugaya (JAEA)
<b>P-5</b>	Safety aspects of fabrication of Americium-Plutonium Oxide pellets in a glovebox	J.D. Bruin (NRG)
<b>P-6</b>	A simple way for checking sampling representativity in nuclear facilities stacks	F. Minot (CEA)
<b>P-7</b>	Decommissioning program of Research Hot Laboratory in JAEA - Technical review of dismantling works for the Lead Cells Part 2 -	H. Shiina (JAEA)
<b>P-8</b>	Design of pseudo fuel debris fabrication equipment for critical experiment in converted STACY	F. Kobayashi (JAEA)
<b>P-9</b>	SKAPHIA: Shielded electron probe microanalyzer for radioactive samples	M.P. Moret (CAMECA)
<b>P-10</b>	Nuclear material transfer technologies and related operational activities at JRC Karlsruhe Hot Cells	L. Velnom (JRC)
<b>P-11</b>	First window replacement at the Hot Fuel Examination Facility	H.J.M.Chichester (INL)
<b>P-12</b>	Lab-scale continuous vitrification process for high level waste	I. Bisel (CEA)
<b>P-13</b>	Robot-assisted analysis procedure for hydrogen content determination of irradiated fuel cladding	H. Wiese (PSI)
<b>P-14</b>	High power ISOL radioactive target remote handling at TRIUMF	G. Minor (TRIUMF)
<b>P-15</b>	Development of precise manufacturing of irradiated miniaturized testing specimens at UJV Rez Hot Cell Facility	R. Kopriva (UJV)
<b>P-16</b>	Radioactive sample tomography using brand - new SPECT device designed by Research center Rez, Ltd.	P. Švrčula (CVREZ)
<b>P-17</b>	Development of reconstitution technique and testing of reconstituted bending bars in hotcell	H.S. Nolles (NRG)
<b>P-18</b>	Fabrication techniques of the sample supporting jigs for post irradiation examination with 3 dimension printer	H. Miyai (JAEA)
<b>P-19</b>	Radioactive materials post-irradiation examination at CANS	Z.L. Peng (McMaster Univ.)
<b>P-20</b>	Hydrogen content analyze in post-irradiation examination samples	G. Yi-fan (CIAE)
<b>P-21</b>	Study on boron carbide reinforced aluminums matrix neutron absorbing material irradiation stability	X. Hang (NPIC)
<b>P-22</b>	Wettability of Liquid CsI on Polycrystalline UO <sub>2</sub>	H. Ishii (Osaka Univ.)
<b>P-23</b>	Gamma scanning of spent fuel element from nuclear power plant	Z. Xin-xin (CIAE)
<b>P-24</b>	Development of the electrochemical testing techniques in hot-cell	H. Tsuchihashi (NFD)
<b>P-25</b>	High temperature physicochemical properties of irradiated fuels	T. Ishikawa (JAEA)
<b>P-26</b>	ROBATEL Industries - Nuclear solutions provider since 1953.Hot lab Solutions	C. Dane (ROBATEL)
<b>P-27</b>	R&D at ROBATEL Industries - New materials for nuclear safety	T. Garnier (ROBATEL)
<b>P-28</b>	Enhancing MA transmutation by irradiation of (MA, ZR)H <sub>x</sub> in FBR blanket - Fabrication of (Ln, Zr)H <sub>x</sub> pellets -	M. Hirai (NFD)

**Technical Tours** (Thursday 21 and Friday 22 Sep., confirmed participants only)

Fukushima area	
8:10	Meet at Robby of Mito Keisei Hotel
8:30	Departure from Mito Keisei Hotel by bus
10:30-11:20	Naraha Remote Technology Development Center (JAEA)
11:40-12:20	Lunch
12:30-16:30	Fukushima Daiichi NPS (TEPCO)
18:00	Arriving at Mito Keisei Hotel

Tokai area				
9:40	Meet at Robby of Mito Keisei Hotel			
10:00	Departure from Mito Keisei Hotel by bus			
10:30-12:00	Nuclear Science Research Institute (JAEA Tokai)			
	<table border="1"> <tr> <td>Group A</td> <td>Group B</td> </tr> <tr> <td>RFEF NSRR</td> <td>J-PARC</td> </tr> </table>	Group A	Group B	RFEF NSRR
Group A	Group B			
RFEF NSRR	J-PARC			
12:00-13:10	Lunch			
13:30-15:00	<table border="1"> <tr> <td>J-PARC</td> <td>RFEF NSRR</td> </tr> </table>	J-PARC	RFEF NSRR	
J-PARC	RFEF NSRR			
15:30	Arriving at Mito Keisei Hotel			

**[Important information for Technical tour]**

- You will need to bring your passport with you for the identification (original document only; copies cannot be used).**
- Carrying cameras, camera-equipped cell phones, smart-phones or equipment which has a photography function is **strictly prohibited** in the sites (security measures for nuclear material protection).
- Please be advised that we may not be able to return your belongings if contaminated.
- Please wear **"long sleeves" and "long trousers"** to prevent any accidental adhesion of radioactive substances to your body.
- Please wear shoes which are easy to walk in, and avoid sandals, high-heeled shoes and so on. In addition, for women, please refrain from wearing a skirt.