

**Fourth International Workshop on Technology and Components for Accelerator Driven Systems
(TCADS-4)**

14-17 October 2019

Programme

Monday 14 October 2019

08:00	09:00	Registration
09:00	09:10	Welcome address from SCK-CEN Gert Van den Eynde
09:10	09:20	Welcome address from NEA Stéphanie Cornet

SESSION 1: International and National Programmes
Chairs: S. Cornet & M. Tarantino

09:20	09:50	The current status of the MYRRHA Project Gert Van den Eynde (SCK-CEN, Belgium)
09:50	10:20	ADS Activities in China 2019 Wenlong Zhan (CAS, China)
10:20	10:50	ADS activities of the international Thorium Energy Committee Maurice Bourquin (iTheC, Switzerland)
10:50	11:20	The current R&D status in JAEA Kazufumi Tsujimoto (JAEA, Japan)
11:20	11:40	<i>Coffee</i>
11:40	12:10	An R&D Program for Accelerator-based Transmutation System for LLFP Hiroyoshi Sakurai (Riken, Japan)
12:10	12:40	Lessons learned from designing, constructing and commissioning KIPT ADS facility Yousry Gohar (ANL, US)
12:40	14:00	<i>Lunch</i>

SESSION 2: ADS accelerators systems
Chairs: A. Mueller & A. Stankovskiy

14:00	14:20	The MYRRHA Phase 1 accelerator: design and integrated prototyping Dirk Vandeplassche (SCK-CEN, Belgium)
14:20	14:40	The MYRRHA Superconducting linac: fault-tolerant design and developments Frédéric Bouly (CNRS, France)
14:40	15:00	MYRRHA LEBT recommissioning and high speed modelling with Neural Networks Mathieu Debongnie (CNRS, France)
15:00	15:20	Cryogenic System for the SC LINAC MINERVA Project (MYRRHA phase 1) Olga Kochebina (Accelerators and Cryogenic Systems, France)
15:20	15:40	17 MeV MYRRHA Beam Dump Design Damien Lamberts (SCK-CEN, Belgium), on behalf of Yurdunaz Celik

15:40	16:00	<i>Coffee</i>
16:00	16:20	Stability and Reliability Study on the China ADS Front end superconducting demo linac (CAFe) Yuan He (CAS, China)
16:20	16:40	Operating status of the RF cavities in the J-PARC linac Takatoshi Morishita (JAEA, Japan)
16:40	17:00	Almost Everything About Backward Wave Acceleration (Third Method of Particles Linear Acceleration) Alexei Bogomolov (IPPE, Russia)

SESSION 3: Neutron sources
Chairs: L. Popescu & Y. Gohar

17:00	17:20	J-PARC LBE Spallation Target for ADS Development Toshinobu Sasa (JAEA, Japan)
17:20	17:40	The Proton Target Facility to be constructed in the first phase of MYRRHA Lucia-Ana Popescu (SCK-CEN, Belgium)
17:40	18:00	Accelerator and target for transmutation of long-lived fission products of nuclear waste Hiroki Okuno (Riken, Japan)

Tuesday 15 October 2019

SESSION 4 Design and technology of subcritical systems
Session 4a Design
Chairs: K. Van Tichelen & A. Rineiski

09:00	09:20	The preliminary conceptual design for the subcritical reactor of China initiative accelerator driven Long Gu (IMPCAS, China)
09:20	09:40	Leak-Before-Break (LBB) Design for Accelerator-Driven Systems (ADS) Steam Generators Jeonghyeon Lee (UNIST, Korea)
09:40	10:00	Analysis of MYRRHA 600 MeV Proton Beam Line shielding Alexey Stankovskiy (SCK-CEN, Belgium) on behalf of Yurdunaz Celik

10:00 10:20 *Coffee*

Session 4b R&D
Chairs: T. Sasa & N. Watanabe

10:20	10:40	Overview of research on LBE corrosion and oxygen control technique in IMP Cufeng Yao (IMPCAS, China)
10:40	11:00	The LBE coolant chemistry R&D programme for the MYRRHA ADS Alexander Aerts (SCK-CEN, Belgium)
11:00	11:20	Oxygen transfer and oxidation of LBE at the LBE-cover gas interface Kris Rosseel (SCK-CEN, Belgium)
11:20	11:40	Release and deposition of volatile radionuclides in lead-bismuth cooled ADS Jörg Neuhausen (PSI, Switzerland)

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| 11:40 | 12:00 | Development of analysis code for spallation products behaviour in LBE coolant system in ADS
Shinya Miyahara (Uni. of Fukui, Japan) |
| 12:00 | 12:20 | Nuclear Data Production System in RAON
Seung-Woo Hong (Sungkyunkwan Uni., Korea) |

12:20 13:20 *Lunch*

Session 4b: R&D
Chairs: T. Sasa & N. Watanabe

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| 13:20 | 13:40 | Experimental activities on liquid-metal thermal hydraulics at SCK-CEN in support of MYRRHA
Katrien Van Tichelen (SCK-CEN, Belgium) |
| 13:40 | 14:00 | Fuel Bundle Experimental Characterisation in Heavy Liquid Metal
Mariano Tarantino (ENEA, Italy) |
| 14:00 | 14:20 | RELAP5 simulations of the CIRCE-HERO facility for PLOFA scenarios
Francesco Galleni (Uni. Pisa, Italy) |
| 14:20 | 14:40 | Multiscale simulation of the CIRCE-HERO facility by a STH/CFD coupling tool
Daniele Martelli (ENEA, Italy) |
| 14:40 | 15:00 | HERO - Steam Generator Bayonet Tube Experimental Validation in CIRCE Facility
Mariano Tarantino (ENEA, Italy), on behalf of Pierdomenico Lorusso |
| 15:00 | 15:20 | <i>Coffee</i> |
| 15:20 | 15:40 | Numerical thermal-hydraulic simulation of LBE target mock-up loop "IMMORTAL" by using RELAP5-3D
Nao Watanabe (JAEA, Japan) |
| 15:40 | 16:00 | Mechanical properties of austenitic and martensitic steels in contact with liquid lead and LBE
Ingrid Proriol Serre (Uni. Lille, UMET, France) |

Session 5: Current ADS Experiments
Chairs: Y. He & O. Kochebina

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| 16:00 | 16:20 | Study on applicability of subcriticality measurement method to LBE cooled accelerator-driven system
Ryota Katano (JAEA, Japan) |
| 16:20 | 16:40 | Interpretation of reactivity measurements performed for some subcritical configurations at KUCA
Valentina Fabrizio (ENEA, Italy), on behalf of Mario Carta |
| 16:40 | 17:00 | LBE spallation target handling technologies in JAEA
Hironari Obayashi (JAEA, Japan) |
| 19.00 | | Workshop Dinner (12th Floor Lindner Hotel) |

Wednesday 16 October 2019

Session 5 : Current ADS experiments

Chairs: Y. He & O. Kochebina

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| 09:00 | 09:20 | Validation of sub-criticality monitoring techniques for the MYRRHA ADS
Anatoly Kotchetkov (SCK-CEN, Belgium) |
| 09:20 | 09:40 | Beam Interruption Experiments in a Deep Subcritical ADS within the MYRACL Programme
Jean-Luc Lecouey (ENSICAEN/LPC Caen, France) |
| 09:40 | 10:00 | Experimental verification of the threshold spectral index measurement as a relative method for keff monitoring in a fast sub-critical reactor
Antonin Krasa (SCK-CEN, Belgium) |
| 10:00 | 10:20 | Neutron noise experiments in a lead-bismuth core within the MYRTE project
Vicente Becares-Palacios (CIEMAT, Spain) |
| 10:20 | 10:40 | <i>Coffee</i> |

Session 6: ADS data and simulations

Chairs: G. Van den Eynde & I. Proriol-Serre

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| 10:40 | 11:00 | 3-D Simulation of Fuel Assembly Blockage in MYRRHA
Xue-Nong Chen (KIT, Germany) |
| 11:00 | 11:20 | A control oriented model for the simulation of the accelerator driven systems
Stefano Lorenzi (POLIMI, Italy) |
| 11:20 | 11:40 | PSi project for Accelerator-Driven Systems
Kenji Nishihara (JAEA, Japan) |
| 11:40 | 12:00 | Exploration and quantification of the main differences on ADS nuclear fuel cycle simulators
Augusto Hernandez-Solis (SCK-CEN, Belgium) |
| 12:00 | 12:20 | Calculating swing reactivity of accelerator-driven systems (ADS) subcritical reactor
S. Sudarmono (BATAN, Indonesia) |
| 12:20 | 13:30 | <i>Lunch</i> |

SESSION 6: ADS data and simulations

Chairs: G. Van den Eynde & I. Proriol Serre

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| 13:30 | 13:50 | Development of nuclear data for performance assessment and safety analysis of MYRRHA
Arjan Plompen (JRC, EU) on behalf of Peter Schillebeeckx |
| 13:50 | 14:10 | Investigation of nuclear data accuracy for commercial grade accelerator-driven system to transmute minor actinides
Takanori Sugawara (JAEA, Japan) |
| 14:10 | 14:30 | Cross section measurements for LLFP nuclei at RIBF
Hideaki Otsu (Riken, Japan) |
| 14:30 | 14:50 | Measurement of displacement cross-section and residual nuclide cross-section by spallation reaction
Shin-Ichiro Meigo (JAEA, Japan) |

14:50 15:10 **Neutronic characterisation of a TRIGA reactor in a sub-critical configuration**
Fabio Panza (ENEA, Italy)

15:10 15:30 *Coffee*

Summary Session

15:30 16:00 **Summary by sessions chairs**

16:00 16:15 **Summary**
Kazufumi Tsujimoto

Thursday 17 October 2019

Tour of SCK-CEN facilities

Departure 8.00 am from Lindner Hotel

Return at 13.30 or 17.30 at Lindner Hotel