

**SUMMARY OF TECHNICAL SESSION V:
ADS EXPERIMENTS AND TEST FACILITIES**

Chairs: P. D'hondt, V. Bhatnagar

Summary

- Five (5) papers were presented.
- One (1) paper was not presented: “Core Neutronics Assessment for TRADE Experiments” by D.G. Naberezhnev, *et al.* (ANL, USA).

Paper 1

- Presented by H. Oigawa (JAERI, Japan).
- Entitled “Concept of Transmutation Experimental Facility”.
- Remarks – within the J-PARC complex:
 - **TEF-P**: Physics experiments with MA nitride fuel (600 MeV, 10 W), H⁻ beam as a mock-up of subcritical facility.
 - Validation of neutronics, performance test of ADS and transmutation of MA and LLFP.
 - **TEF-T**: Material irradiation tests (200 kW beam, dia. = 4 cm, 10¹⁴ n/cm²/s) in flowing LBE without nuclear fuel.
 - Test lifetime of window, structural material under (n, p) irradiation, compatibility of materials with LBE, operation and control of spallation target system
 - Decision and operation 2008 onwards?

Paper 2

- Presented by M. Hron (NRI, Czech Republic).
- Entitled “Experimental Verification of Selected Transmutation Technology and Materials for Basic Components of a Demonstration Transmuter with Liquid Fuel Based on Molten Fluorides”.
- Remarks:
 - **SPHINX**: spent hot fuel incinerator by neutron flux project.
 - **Accelerator-driven concept** of MA transmutation demonstrator with molten salt using dry processing.
 - **BLANKA 1**: fluoride material testing probe irradiated in research reactor at NRI, Rez (T, p measurements).
 - **BLANKA 4**: Larger assembly also installed.
 - EC project: **MOST** and Russian **AMPULA**.

Paper 3

- Presented by Y.H. Kim (KAERI, Korea).
- Entitled “Application of the HYPER System to the DUPIC Fuel Cycle”.
- Remarks:
 - DUPIC: PWR spent fuel recycled in CANDU reactor after a simple refabrication process.
 - After pyroprocessing, this spent fuel can be transmuted in HYPER system.
 - Proliferation resistance cycle, uranium resource saving.
 - Fuel cycle cost comparable to once-through cycle.
 - HYPER system preliminary design features and performance analysis presented.
 - Utilities still have to show interest in this cycle.

Paper 4

- Presented by P. Coddington (PSI, CH).
- Entitled “Numerical Comparisons Between Neutronic Characteristics of MUSE4 Configurations and XADS-type Models”.
- Remarks:
 - Aim was to make representativity calculations between MUSE4 and XADS concepts for Na, He and LBE-cooled systems.
 - Results do not show good representation in LBE case.
 - There were comments from the audience regarding the utility of the calculations as configurations do not match.
 - Pb-loaded MUSE4 system could be better for these calculations.
 - Suggestion for TRADE simulation was made but not found to be of great value.

Paper 5

- Presented by B.S. Lee (KAERI, Korea).
- Entitled “Reaction of Pb Bonding Between Fuel and Cladding”.

- Remarks:
 - Presentation included the fabrication process and a study of thermal stability of U-Zr fuel.
 - U-55 wt.% Zr fuel has good thermal stability.
 - A significant interaction between U-55 wt.% Zr and Pb is observed at 650°C.
 - Thickness of the interaction zone is 26, 36, 46 μm when the sample is immersed in liquid Pb for 100, 200, 1 000 hrs, respectively.

SUMMARIES OF WORKING GROUP DISCUSSION SESSIONS

Chairs: R. Sheffield, B-H. Choi

*The summaries contained in this section reflect the views of the respective Chairperson(s)
and do not necessarily reflect the views of the working group members.*

TABLE OF CONTENTS

Foreword	3
Executive Summary.....	11
Welcome.....	15
<i>D-S. Yoon</i> Congratulatory Address	17
<i>I-S. Chang</i> Welcome Address	19
<i>G.H. Marcus</i> OECD Welcome	21
GENERAL SESSION: ACCELERATOR PROGRAMMES AND APPLICATIONS.....	23
<i>CHAIRS: B-H. CHOI, R. SHEFFIELD</i>	
<i>T. Mukaiyama</i> Background/Perspective.....	25
<i>M. Salvatores</i> Accelerator-driven Systems in Advanced Fuel Cycles	27
<i>S. Noguchi</i> Present Status of the J-PARC Accelerator Complex	37
<i>H. Takano</i> R&D of ADS in Japan.....	45
<i>R.W. Garnett, A.J. Jason</i> Los Alamos Perspective on High-intensity Accelerators.....	57
<i>J-M. Lagniel</i> French Accelerator Research for ADS Developments.....	69
<i>T-Y. Song, J-E. Cha, C-H. Cho, C-H. Cho, Y. Kim, B-O. Lee, B-S. Lee, W-S. Park, M-J. Shin</i> Hybrid Power Extraction Reactor (HYPER) Project	81

<i>V.P. Bhatnagar, S. Casalta, M. Hugon</i> Research and Development on Accelerator-driven Systems in the EURATOM 5 th and 6 th Framework Programmes.....	89
<i>S. Monti, L. Picardi, C. Rubbia, M. Salvatores, F. Troiani</i> Status of the TRADE Experiment.....	101
<i>P. D'hondt, B. Carlucci</i> The European Project PDS-XADS “Preliminary Design Studies of an Experimental Accelerator-driven System”.....	113
<i>F. Groeschel, A. Cadiou, C. Fazio, T. Kirchner, G. Laffont, K. Thomsen</i> Status of the MEGAPIE Project.....	125
<i>P. Pierini, L. Burgazzi</i> ADS Accelerator Reliability Activities in Europe	137
<i>W. Gudowski</i> ADS Neutronics	149
<i>P. Coddington</i> ADS Safety	151
<i>Y. Cho</i> Technological Aspects and Challenges for High-power Proton Accelerator-driven System Application.....	153
TECHNICAL SESSION I: ACCELERATOR RELIABILITY.....	163
<i>CHAIRS: A. MUELLER, P. PIERINI</i>	
<i>D. Vandeplasseche, Y. Jongen (for the PDS-XADS Working Package 3 Collaboration)</i> The PDS-XADS Reference Accelerator	165
<i>N. Ouchi, N. Akaoka, H. Asano, E. Chishiro, Y. Namekawa, H. Suzuki, T. Ueno, S. Noguchi, E. Kako, N. Ohuchi, K. Saito, T. Shishido, K. Tsuchiya, K. Ohkubo, M. Matsuoka, K. Sennyu, T. Murai, T. Ohtani, C. Tsukishima</i> Development of a Superconducting Proton Linac for ADS.....	175
<i>C. Miélot</i> Spoke Cavities: An Asset for the High Reliability of a Superconducting Accelerator; Studies and Test Results of a $\beta = 0.35$, Two-gap Prototype and its Power Coupler at IPN Orsay	185
<i>X.L. Guan, S.N. Fu, B.C. Cui, H.F. Ouyang, Z.H. Zhang, W.W. Xu, T.G. Xu</i> Chinese Status of HPPA Development	195

<i>J.L. Biarrotte, M. Novati, P. Pierini, H. Safa, D. Uriot</i> Beam Dynamics Studies for the Fault Tolerance Assessment of the PDS-XADS Linac	203
<i>P.A. Schmelzbach</i> High-energy Beat Transport Lines and Delivery System for Intense Proton Beams	215
<i>M. Tanigaki, K. Mishima, S. Shiroya, Y. Ishi, S. Fukumoto, S. Machida, Y. Mori, M. Inoue</i> Construction of a FFAG Complex for ADS Research in KURRI	217
<i>G. Ciavola, L. Celona, S. Gammino, L. Andò, M. Presti, A. Galatà, F. Chines, S. Passarello, XZh. Zhang, M. Winkler, R. Gobin, R. Ferdinand, J. Sherman</i> Improvement of Reliability of the TRASCO Intense Proton Source (TRIPS) at INFN-LNS	223
<i>R.W. Garnett, F.L. Krawczyk, G.H. Neuschaefer</i> An Improved Superconducting ADS Driver Linac Design.....	235
<i>A.P. Durkin, I.V. Shumakov, S.V. Vinogradov</i> Methods and Codes for Estimation of Tolerance in Reliable Radiation-free High-power Linac	245
<i>S. Henderson</i> Status of the Spallation Neutron Source Accelerator Complex	257
TECHNICAL SESSION II: TARGET, WINDOW AND COOLANT TECHNOLOGY.....	265
CHAIRS: X. CHENG, T-Y. SONG	
<i>Y. Kurata, K. Kikuchi, S. Saito, K. Kamata, T. Kitano, H. Oigawa</i> Research and Development on Lead-bismuth Technology for Accelerator-driven Transmutation System at JAERI	267
<i>P. Michelato, E. Bari, E. Cavaliere, L. Monaco, D. Sertore, A. Bonucci, R. Giannantonio, L. Cinotti, P. Turroni</i> Vacuum Gas Dynamics Investigation and Experimental Results on the TRASCO ADS Windowless Interface	279
<i>J-E. Cha, C-H. Cho, T-Y. Song</i> Corrosion Tests in the Static Condition and Installation of Corrosion Loop at KAERI for Lead-bismuth Eutectic	291
<i>P. Schuurmans, P. Kupschus, A. Verstrepen, J. Cools, H. Ait Abderrahim</i> The Vacuum Interface Compatibility Experiment (VICE) Supporting the MYRRHA Windowless Target Design	301

<i>C-H. Cho, Y. Kim, T-Y. Song</i> Introduction of a Dual Injection Tube for the Design of a 20 MW Lead-bismuth Target System.....	313
<i>H. Oigawa, K. Tsujimoto, K. Kikuchi, Y. Kurata, T. Sasa, M. Umeno, K. Nishihara, S. Saito, M. Mizumoto, H. Takano, K. Nakai, A. Iwata</i> Design Study Around Beam Window of ADS.....	325
<i>S. Fan, W. Luo, F. Yan, H. Zhang, Z. Zhao</i> Primary Isotopic Yields for MSDM Calculations of Spallation Reactions on ²⁸⁰ Pb with Proton Energy of 1 GeV.....	335
<i>N. Tak, H-J. Neitzel, X. Cheng</i> CFD Analysis on the Active Part of Window Target Unit for LBE-cooled XADS.....	343
<i>T. Sawada, M. Orito, H. Kobayashi, T. Sasa, V. Artisyuk</i> Optimisation of a Code to Improve Spallation Yield Predictions in an ADS Target System.....	355
TECHNICAL SESSION III: SUBCRITICAL SYSTEM DESIGN AND ADS SIMULATIONS.....	363
<i>CHAIRS: W. GUDOWSKI, H. OIGAWA</i>	
<i>T. Misawa, H. Unesaki, C.H. Pyeon, C. Ichihara, S. Shiroya</i> Research on the Accelerator-driven Subcritical Reactor at the Kyoto University Critical Assembly (KUCA) with an FFAG Proton Accelerator.....	365
<i>K. Nishihara, K. Tsujimoto, H. Oigawa</i> Improvement of Burn-up Swing for an Accelerator-driven System	373
<i>S. Monti, L. Picardi, C. Ronsivalle, C. Rubbia, F. Troiani</i> Status of the Conceptual Design of an Accelerator and Beam Transport Line for Trade.....	383
<i>A.M. Degtyarev, A.K. Kalugin, L.I. Ponomarev</i> Estimation of some Characteristics of the Cascade Subcritical Molten Salt Reactor (CSMSR).....	393
<i>F. Roelofs, E. Komen, K. Van Tichelen, P. Kupschus, H. Ait Abderrahim</i> CFD Analysis of the Heavy Liquid Metal Flow Field in the MYRRHA Pool.....	401
<i>A. D'Angelo, B. Arien, V. Sobolev, G. Van den Eynde, H. Ait Abderrahim, F. Gabrielli</i> Results of the Second Phase of Calculations Relevant to the WPPT Benchmark on Beam Interruptions	411

TECHNICAL SESSION IV: SAFETY AND CONTROL OF ADS 423

CHAIRS: J-M. LAGNIEL, P. CODDINGTON

*P. Coddington, K. Mikityuk, M. Schikorr, W. Maschek,
R. Sehgal, J. Champigny, L. Mansani, P. Meloni, H. Wider*
Safety Analysis of the EU PDS-XADS Designs..... 425

*X-N. Chen, T. Suzuki, A. Rineiski, C. Matzerath-Boccaccini,
E. Wiegner, W. Maschek*
Comparative Transient Analyses of Accelerator-driven Systems
with Mixed Oxide and Advanced Fertile-free Fuels 439

P. Coddington, K. Mikityuk, R. Chawla
Comparative Transient Analysis of Pb/Bi
and Gas-cooled XADS Concepts 453

B.R. Sehgal, W.M. Ma, A. Karbojian
Thermal-hydraulic Experiments on the TALL LBE Test Facility 465

K. Nishihara, H. Oigawa
Analysis of Lead-bismuth Eutectic Flowing into Beam Duct..... 477

P.M. Bokov, D. Ridikas, I.S. Slessarev
On the Supplementary Feedback Effect Specific
for Accelerator-coupled Systems (ACS)..... 485

W. Haeck, H. Ait Abderrahim, C. Wagemans
 K_{eff} and K_s Burn-up Swing Compensation in MYRRHA 495

TECHNICAL SESSION V: ADS EXPERIMENTS AND TEST FACILITIES 505

CHAIRS: P. D'HONDT, V. BHATNAGAR

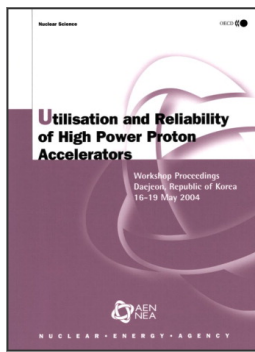
*H. Oigawa, T. Sasa, K. Kikuchi, K. Nishihara, Y. Kurata, M. Umeno,
K. Tsujimoto, S. Saito, M. Futakawa, M. Mizumoto, H. Takano*
Concept of Transmutation Experimental Facility 507

M. Hron, M. Mikisek, I. Peka, P. Hosnedl
Experimental Verification of Selected Transmutation Technology and Materials
for Basic Components of a Demonstration Transmuter with Liquid Fuel
Based on Molten Fluorides (Development of New Technologies for
Nuclear Incineration of PWR Spent Fuel in the Czech Republic) 519

Y. Kim, T-Y. Song
Application of the HYPER System to the DUPIC Fuel Cycle..... 529

M. Plaschy, S. Pelloni, P. Coddington, R. Chawla, G. Rimpault, F. Mellier
Numerical Comparisons Between Neutronic Characteristics of MUSE4
Configurations and XADS-type Models 539

<i>B-S. Lee, Y. Kim, J-H. Lee, T-Y. Song</i> Thermal Stability of the U-Zr Fuel and its Interfacial Reaction with Lead	549
SUMMARIES OF TECHNICAL SESSIONS	557
<i>CHAIRS: R. SHEFFIELD, B-H. CHOI</i>	
<i>Chairs: A.C. Mueller, P. Pierini</i> Summary of Technical Session I: Accelerator Reliability	559
<i>Chairs: X. Cheng, T-Y. Song</i> Summary of Technical Session II: Target, Window and Coolant Technology	565
<i>Chairs: W. Gudowski, H. Oigawa</i> Summary of Technical Session III: Subcritical System Design and ADS Simulations.....	571
<i>Chairs: J-M. Lagniel, P. Coddington</i> Summary of Technical Session IV: Safety and Control of ADS	575
<i>Chairs: P. D'hondt, V. Bhatagnar</i> Summary of Technical Session V: ADS Experiments and Test Facilities.....	577
SUMMARIES OF WORKING GROUP DISCUSSION SESSIONS	581
<i>CHAIRS: R. SHEFFIELD, B-H. CHOI</i>	
<i>Chair: P.K. Sigg</i> Summary of Working Group Discussion on Accelerators.....	583
<i>Chair: W. Gudowski</i> Summary of Working Group Discussion on Subcritical Systems and Interface Engineering	587
<i>Chair: P. Coddington</i> Summary of Working Group Discussion on Safety and Control of ADS.....	591
<i>Annex 1: List of workshop organisers</i>	<i>595</i>
<i>Annex 2: List of participants.....</i>	<i>597</i>



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