OECD Nuclear Energy Agency

Fifth International Workshop on the Utilisation and Reliability of High Power Proton Accelerators (HPPA5)

6-9 May 2007, Mol, Belgium

Programme

**Sunday, 6 May 2007**

18:00-20:00  Registration
19:00  Welcome drink (SunParks)

**Monday, 7 May 2007**

08:00-08:30  Bus transport from SunParks to SCK•CEN
08:00-09:00  Registration

**Opening Session (Chairs: P. D’hondt, A. Mueller)**

09:00-09:10  Welcome address from SCK•CEN
09:10-09:30  Welcome address from OECD/NEA
09:30-10:00  *Invited speech*
  Title to be confirmed (*Y. Jongen, IBA, Belgium*) ...................................................... O-1
10:00-10:30  *Invited speech*
  MEGAPIE – Irradiation Experience of the First Megawatt Liquid Metal Spallation Target (*F. Groeschel, PSI, Switzerland*) .................................................. O-2
10:30-11:00  Coffee break

**Session on MEGAPIE Programme (Chairs: J. Knebel, F. Groeschel)**

11:00-11:20  Safety Evaluation of the MEGAPIE Experimental Facility: Results and Insights from the Application of Probabilistic Safety Assessment (*L. Podofillini, PSI, Switzerland*) ................................................................. M-1
11:20-11:40  A Dedicated Beam Interrupt System for the Safe Operation of the MEGAPIE Liquid Metal Target (*K. Thomsen, PSI, Switzerland*) ......................... M-2
11:40-12:00  The Role of SCK•CEN in the MEGAPIE Project (*M. Dierckx*) ......................... M-3
12:00-13:30  Sandwich lunch

**Session I: Accelerator Programmes and Applications (Chairs: H. Klein, P. Pierini)**

13:30-14:00  *Invited speech*
  Status of the EUROTRANS R&D Activities for ADS Accelerator Development (*J-L. Biarrotte, IPN, France*) ................................................................. I-1
14:00-14:20  Design of a Test Cryomodule for the High-energy Section of the EUROTRANS Linac (*S. Barbanotti, INFN, Italy*) ......................................................... I-2
14:40-15:10  Coffee break
15:10-15:30 Development of Superconducting Spoke Cavities for an ADS Linac
(G. Olry, IPN, France)..............................................................I-4
15:30-15:50 Status of the Preparation of the Elliptical Cavity System for the
EUROTRANS Cryomodule (N. Panzeri, INFN, Italy)......................I-5
15:50-16:10 Development of Room Temperature and Superconducting CH-structures
for High Power Linacs (H. Podlech, IAP, Germany).........................I-6
17:00-17:30 Bus transport from SCK•CEN to SunParks

Tuesday, 8 May 2007

08:00-08:30 Bus transport from SunParks to SCK•CEN

Session I: Accelerator Programmes and Applications (Chairs: H. Klein, P. Pierini) (cont.)
08:30-09:00 Invited speech
Upgrade of the PSI Proton Accelerator Facility to 1.8 MW
(P. Schmelzbach, PSI, Switzerland)...............................................I-7
09:00-09:20 ERAWAST – A New Production Route for Exotic Long-lived Radionuclides
(D. Schumann, PSI, Switzerland)..............................................I-8
09:20-09:40 150 MeV FFAG Accelerator Complex as a Neutron Production Driver
for ADS Study (M. Tanigaki, Kyoto Univ., Japan)............................I-9
09:40-10:00 Hybrid PBG Structure: A Challenging Cavity System for High Power,
High Intensity Accelerators (V. Vaccaro, Univ. “Federico II”, Italy)......I-10
10:00-10:30 Coffee break

Session II: Accelerator Reliability (Chairs: B.H. Choi, J-L. Biarrotte)
10:30-11:00 Invited speech
Operational Experience of a Superconducting Cavity Fault Recovery
System at the Spallation Neutron Source (J. Galambos, ORNL, USA)....II-1
11:00-11:30 Invited speech
Reliability Studies for a Superconducting Driver for an ADS Linac
(P. Pierini, INFN, Italy)...............................................................II-2
11:30-11:50 Comparison of Beam Trip Frequencies Between Estimation from
Current Experimental Data of Accelerators and Requirement from
ADS Transient Analysis (H. Takei, JAER, Japan).............................II-3
11:50-12:10 Cavity Detuning Due to Power Dissipation: A New Numerical
Approach Combining the Thermo-mechanical and the e.m. Codes
(V. Vaccaro, Univ. “Federico II”, Italy)........................................II-4
12:10-13:40 Sandwich lunch

Session III: Spallation Target Development and Coolant Technology
(Chairs: H. Oigawa, Y. Gohar)
13:40-14:10 Invited speech
WEBExPl: Windowless Electron Beam Experimental Irradiation
(J. Heyse, SCK•CEN, Belgium)......................................................III-1
14:10-14:30 RELAP Modelling of the Spallation Loop in the MYRRHA Facility
(S. Heusdains, SCK•CEN, Belgium)...............................................III-2
14:30-14:50 Polonium Behaviour in Eutectic Lead-bismuth Alloy
(J. Neuhausen, PSI, Switzerland)................................................III-3
14:50-15:10 Thermodynamic Properties and Equation of State of Heavy Liquid Metals
(V. Sobolev, SCK•CEN, Belgium)................................................III-4
15:10-15:30 Coffee break
15:30-15:50 Design and Supporting R&D of the XT-ADS Spallation Target
(P. Schuurmans, SCK•CEN, Belgium).........................................................................III-5
15:50-16:10 Study of Measurement Method of High-energy Neutrons for ADS
(K. Abe, Tohoku Univ., Japan)................................................................................III-6
16:10-16:30 Application of the INCL+ABLA Reaction Model to the Study of the
Evolution of Spallation Targets (Th. Aoust, SCK•CEN, Belgium).............................III-7
16:30-16:50 Neutronic Design of the EURISOL Multi-MW Spallation Target for
Radioactive Ion Beam Production (A. Herrera-Martinez, CERN, Switzerland)......III-8
16:50-17:10 Delayed Neutrons Yields and Time Spectra from 1 GeV Protons Interacting
with Thick natPb, 209Bi and natFe Targets (D. Ridikas, CEA, France)....................III-9
17:30-18:00 Bus transport from SCK•CEN to SunParks
19:30-23:00 Conference dinner

Wednesday, 9 May 2007

08:00-08:30 Bus transport from SunParks to SCK•CEN

Session IV: Subcritical System Design and ADS Simulations (Chairs: P. Baeten, S. Monti)

08:30-09:00 Invited speech
Pre-conceptual Design of a Helium-cooled ADS: He-EFIT
(P. Richard, CEA, France)..........................................................................................IV-1
09:00-09:20 A-BAQUS: A Multi-entry Graph Assisting the Neutronic Design
of an ADS. Case Study: EFIT (C. Artioli, ENEA, Italy)........................................IV-2
09:20-09:40 Comparative Analysis of Neutron Sources Produced by Low-energy
Electrons and Deuterons for Driving Subcritical Assemblies
(Y. Gohar, ANL, USA)............................................................................................IV-3
09:40-10:00 China ADS Subcritical Assembly and Preliminary Experimental Results
(Y. Q. Shi, CIAE, China)........................................................................................IV-4
10:00-10:20 Improvement of Dynamics Calculation Code DSE for Accelerator-driven
System (M. Suzuki, Tohoku Univ., Japan).................................................................IV-5
10:20-10:50 Coffee break
10:50-11:10 Corrosion Resistance of Al-Fe-alloy-coated Steel, Refractory Metals and
Ceramics in Lead-bismuth at 700°C (M. Takahashi, TIT, Japan).........................IV-6
11:10-11:30 Neutronic Design of the XT-ADS Core with In-pile Positions
(G. Van den Eynde, SCK•CEN, Belgium).................................................................IV-7
11:30-11:50 The Valuation of Calculation and Extrapolation Experimental
Result on China ADS Subcritical Experimental Assembly Venus-1
(P. Xia, CIAE, China)...............................................................................................IV-8
11:50-13:40 Sandwich lunch


13:40-14:10 Invited speech
The “GUINEVERE” Project at the VENUS Facility
(P. Baeten, SCK•CEN, Belgium)...............................................................................V-1
14:10-14:40 Invited speech
Research and Development Programme on ADS in JAEA (tentative)
(H. Oigawa, JAEA, Japan).......................................................................................V-2
14:40-15:00 The GENEPI Neutron Sources at Grenoble, Perspectives for the
GUINEVERE Project at VENUS (A. Billebaud, CNRS, France)............................V-3
15:00-15:20  Reactivity Measurements in Subcritical Core: RACE-T Experimental Activities (M. Carta, ENEA, Italy) .............................................................................................................. V-4
15:40-16:00  Benchmark Experiments of Accelerator-driven Systems (ADS) in Kyoto University Critical Assembly (KUCA) (C.H. Pyeon, Kyoto Univ. Japan) .... V-6
16:00-16:30  Coffee break
16:30-17:30  Concluding session (Chair: P. D’hondt)
18:00-18:30  Bus transport from SCK•CEN to SunParks