## International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators

Vienna, Austria, 4-8 May 2009

# Programme



IIII ID1



American Nuclear Society

#### International Topical Meeting on Nuclear Research Applications and Utilization of Accelerators, AccApp '09

### Vienna, 4-8 May 2009

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	tellite III E-Beam plications		Satellite III E-Beam Applications																													
Friday 8 May 2009	Poster     Satellite III       Explosives     E-Beam       Detection     Applications		Poster Satellite III Explosives E-Beam Detection Applications	Detection																												
81	Oral Technology E		Oral		Oral Summary Closing																											
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	Satellite V Explosives Detection		Satellite V Explosives Detection		Satellife III Satellife I Satellife VI E-Beam Spallation Synchrotron Applications Reactions		Satellite III Satellite I Satellite V E-Beam Spallation Synchrotron Applications Reactions																									
Thursday 7 May 2009	Poster Satellite III Satellite V Technology E-Bear Explosives Applications Detection		Poster Satellite III Satellite V Technology E-Beam Explosives Applications Detection		Satellite III E-Beam Applications		Satellite III E-Beam Applications																									
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sday 2009	ellite IV NDS	Coffee Break	atellite IV ADS	Lunch		Coffee Break																										
Wednesday 6 May 2009	b May 21 Poster 5 Applications Applications		Poster Applications E-Beam Applications		Poster ADS Spallation Reactions	0	Poster ADS Spallation Reactions																									
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	Satellite II Education & Analytical Applications		Satellite II Education & Analytical Applications		Satellite II Education & Analytical Applications		Satellite II Education & Analytical Applications																									
day 2009	Satellite I Spallation Reactions		Satellite I Spallation Reactions		Satellite III E-Beam Applications		Satellite III E-Beam Applications																									
Tuesday 5 May 2009	Poster Introduction		Poster Introduction		Poster Applications Education & Analytical Applications		Poster Applications Education & Analytical Applications																									
	<b>Oral</b> Applications		Oral Applications		<b>Oral</b> ADS		Oral ADS																									
Monday 4 May 2009	09:30 Welcome Invited	No break	10.40 - 12.30 Applications Applications		Introduction Technology		Introduction ADS																									
Day Date	Time 08:30 - 10:20	10:20 - 10:40	10:40 - 12:30	12:30 - 14:00	14:00 - 15:50 Technology	15:50 - 16:10	16:10 - 18:00																									

#### IAEA SECRETARIAT:

Scientific Secretaries: V. Inozemtsev G. Mank F. Mulhauser A. Stanculescu Conference Coordination: T. Alexander H. Schmid

#### LOCATION OF THE CONFERENCE:

International Atomic Energy Agency Building C Vienna International Centre (VIC) IAEA Board Room Wagramer Strasse 5 1400 Vienna Austria

#### LOCAL ORGANIZATION:

#### **Conference Site Issues:**

	M. Obauer-de Bruyker Wagramer Strasse 5 1400 Vienna Austria Tel. +43 1 2600 0
Satellite Meetings:	F. Mulhauser
WORKING LANGUAGE:	English
RESOLUTIONS:	No resolutions may be submitted for consideration on any subject, no votes will be taken.

## **EXPLANATION OF ABBREVIATIONS**

OV INT	Overview Introductory Lecture
AP	Accelerator Applications
AP//DM	Simulation of Radiation Damage and Testing of Materials for Nuclear Systems
AP/AM	Research and Development of Applications for Advanced Materials
AP/IA	Different Aspects of Industrial Accelerator Applications
AP/IE	Interdisciplinary Endeavours
AT	Accelerator Technology
AT/OC AT/NT AT/RD	Operation, Instrumentation and Control New Acceleration Techniques Research and Development
ADS	Accelerator Driven Systems
AD3	Accelerator Briten Cystems
ADS/ET ADS/ND	Experiments and Test Facilities Nuclear Data
ADS/ET	Experiments and Test Facilities
ADS/ET ADS/ND	Experiments and Test Facilities Nuclear Data Satellite Meetings Nuclear Spallation Reactions Particle Accelerators in Analytical and
ADS/ET ADS/ND SM SM/SR	Experiments and Test Facilities Nuclear Data Satellite Meetings Nuclear Spallation Reactions Particle Accelerators in Analytical and Educational Applications Application of Electron Accelerators: Prospects
ADS/ET ADS/ND SM SM/SR SM/SR SM/AE	Experiments and Test Facilities Nuclear Data Satellite Meetings Nuclear Spallation Reactions Particle Accelerators in Analytical and Educational Applications Application of Electron Accelerators: Prospects and Challenges ADS Satellite Workshop - European Fast Neutron Transmutation Reactor Projects
ADS/ET ADS/ND SM SM/SR SM/SR SM/AE SM/EB	Experiments and Test Facilities Nuclear Data Satellite Meetings Nuclear Spallation Reactions Particle Accelerators in Analytical and Educational Applications Application of Electron Accelerators: Prospects and Challenges ADS Satellite Workshop - European Fast

## ORAL SESSIONS INDEX

MONDAY, 4 May 2009

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- 2 Overview lectures
- 14 Introductory lectures
- 68 Regular talks
- 80 Talks in satellite meetings
- 66 Regular Poster presentations
- 3 Summary talks

### **EXPLANATIONS/REQUESTS**

Introductory posters will be exhibited during all meeting.

All oral presentations will be displayed during the poster sessions following the plan printed at the end of this booklet.

The duration of the oral presentation indicated in the programme includes already the estimated discussion time. The speakers are requested to make available the following times for discussions:

40' Presentation includes 5' discussion time

- 30' Presentation includes 4' discussion time
- 20' Presentation includes 3' discussion time

#### EXHIBITIONS WILL BE ON DISPLAY THROUGHOUT THE SYMPOSIUM

## PARTICIPATION IN THE IAEA SCIENTIFIC MEETINGS

Governments of Member States and those organizations whose activities are relevant to the meeting subject matter are invited to designate participants in the IAEA scientific conferences and symposia. In addition, the IAEA itself may invite a limited number of scientists as invited speakers. Only participants designated or invited in this way are entitled to present papers and take part in the discussions.

Representatives of the press, radio, television or other information media and members of the public, the latter as "observers", may also be authorized to attend, but without the right to take part in the proceedings.

Scientists interested in participating in any of the IAEA meetings should request information from the Government authorities of their own countries, in most cases the Ministry of Foreign Affairs or National Atomic Energy Authority.

## **CONFERENCE PROCEEDINGS**

The papers will be published by the IAEA as unedited proceedings in electronic format on CD-ROM and on the IAEA Physics Section web site by September 2009: <a href="http://www-naweb.iaea.org/iaea.org/napc/physics/index.htm">http://www.naweb.iaea.org/iaea.org/napc/physics/index.htm</a>.

## IAEA PUBLICATIONS

All IAEA publications may be ordered from the Sales and Promotion Unit, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria. Fax: (+43 1) 2600-29302 Email: sales.publications@iaea.org Internet: <u>http://www.iaea.org/Publications/index.html</u>

## Sunday, 3 May 2009

16:00 – 19:00 Registration VIC Gate 1

## Monday, 4 May 2009

08:00 - 16:00	Ground Passes	VIC Gate 1
	Registration	C04 Conference Desk

## Monday, 4 May 2009

## MORNING SESSIONS

## IAEA BOARD ROOM C04

#### 09:30 - 10:00 Opening & Welcome Address

	Name	Designating Member State/Organization		
OP-01	Sokolov, Y.	IAEA		
OP-02	Burkart, W.	IAEA		
OP-03	Pitcher, E. J.	ANS		
10:00 - 10:40	Overview Chair: S. Machi (Japan	)		
No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
OV-01	Ait-Abderrahim, H.	Belgium	20	ADS projects in the world and Perspective for Implementation of MYRRHA/XT-ADS in Europe
OV-02	Oyama, Y. O.	Japan	20	Status of J-PARC and its Scientific Applications
10:40 - 12:30	Accelerator Applicatio Chair: A. Ryazanov (Ru			
No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/INT-01	Dai, Y.	Switzerland	20	The Status of Studies on Structural Materials under High Energy Proton and Neutron Mixed Spectrum
AP/INT-02	Voyevodin, V.	Ukraine	20	Modern Status of Accelerators in R&D of Structural Materials for Nuclear Reactors
AP/INT-03	Chmielewski, A. G.	Poland	20	Electron Beam Processing – What are the Limits
AP/INT-04	Gozani, T.	United States of America	20	Principles and applications of neutron based inspection techniques

## AFTERNOON SESSIONS

## IAEA BOARD ROOM C04

#### 14:00 - 15:50 Accelerator Technology Chair: P. Cole (United States of America)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AT/INT-01	Hunt, A.	United States of America	20	Active Inspection Fission Signatures for the Detection, Quantification and Identification of Fissionable Materials
AT/INT-02	Sharkov, B.	Russian Federation	20	Multi-Purpose Accelerator-Accumulator ITEP-TWAC for Nuclear Physics and Practical Applications
AT/INT-03	Podlech, H. J.	Germany	20	The 600 MeV EUROTRANS Proton Driver Linac
AT/INT-04	Wei, J.	China	20	China High-Intensity Accelerator Technology Developments for Spallation Neutron Source and Accelerator Driven Systems
AT/INT-05	Vlachoudis, V. V.	Switzerland	20	Commissioning of the New Spallation Target for the n_TOF facility at CERN

#### 16:10 - 18:00 National & International ADS Programmes Chair: W. Wagner (Switzerland)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
ADS/INT-01	Xia, H.	China	20	The Researches of ADS and the Sustainable Development of the Nuclear Energy
ADS/INT-02	Knebel, J.	Germany	20	Partitioning and Transmutation Research in Germany
ADS/INT-03	Nema, P. K.	India	20	ADS Programme and Associated Developments in India-Roadmap and Status of Activities
ADS/INT-04	Takei, H.	Japan	20	Research and Development Programme on ADS in JAEA
ADS/INT-05	Bhatnagar, V.	European Commission	20	Overview of EU Research Activities in Transmutation and Innovative Reactor Systems within the Euratom Framework Programmes

## **MORNING SESSIONS**

## IAEA BOARD ROOM C04

#### 08:30 - 10:20 Research and Development of Applications for Advanced Materials I *Chair: Y. Kiyanagi (Japan)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/AM-01	Ryazanov, A. I.	Russian Federation	20	Influence of Radiation Damage obtained under Fast Charged Particle Irradiation on Plasma-Facing Erosion of Fusion Structural Materials
AP/AM-02	Zschau, H. E.	Germany	20	Application of Accelerators in High Temperature Materials Research
AP/AM-03	Tatlisu, H.	Austria	20	Non-Destructive Inspection of SiCf/SiC Composites Structure
AP/AM-04	lla, D.	United States of America	20	MeV Ion Beam Assisted formation of Pseudo-Crystals
AP/AM-05	Tewari, R.	India	20	Microstructural Investigation of Zirconium Alloys Subjected to Electron, Light and Heavy lons Irradiations

#### 10:40 - 12:30 Research and Development of Applications for Advanced Materials II *Chair: V. Voyevodin (Ukraine)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/AM-07	Kiyanagi, Y. K.	Japan	20	Application of Neutron Transmission Spectroscopic Imaging for Analysis of Texture in Materials for Industrial Use
AP/AM-08	Nsouli, B.	Lebanon	20	On the Direct Characterization and Quantification of Active Ingredients in Commercial Solid Drugs using PIXE, PIGE and TOF-SIMS Techniques
AP/AM-09	Gulevich, A.	Russian Federation	20	Electrostatic Accelerators of IPPE for Nuclear Science and Technology
AP/AM-10	Kailas, S.	India	20	Accelerator Mass Spectrometry programme at Mumbai Pelletron Accelerator Facility

## Tuesday, 5 May 2009

## **MORNING SATELLITE MEETING I**

## **Nuclear Spallation Reactions**

#### 08:30 – 10:20 Nuclear Spallation Reactions I Chair: S. Leray (France)

## **CONFERENCE ROOM C07 IV**

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/SR-01	Leray, S.	France	30	Introduction to the Benchmark of Spallation
SM/SR-02	Cugnon, J.	Belgium	20	Results obtained with INCL4
SM/SR-03	Yariv, Y.	Israel	20	Results obtained with ISABEL
SM/SR-04	Ricciardi, V.	Germany	20	Results obtained with ABLA07
SM/SR-05	Mancusi, D.	Belgium	20	Comparison between various de-excitation models

#### 10:40 - 12:30 Nuclear Spallation Reactions II Chair: J. C. David (France)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/SR-06	Kailas, S.	India	20	Results obtained with CASCADE-0.4
SM/SR-07	Gudima, A.	Republic of Moldova	20	Results obtained with CEM03
SM/SR-08	Ferrari, A.	CERN	20	Results obtained with FLUKA
SM/SR-09	Konobeyev, V	Germany	20	Results obtained with CASCADEX
SM/SR-10	Quesada-Molina, J. M.	CERN	20	Results obtained with nuclear models of GEANT4
SM/SR-11	Matsuda, N.	Japan	20	Results obtained with PHITS

## MORNING SATELLITE MEETING II

## Particle Accelerators in Analytical and Educational Applications

#### 08:30 - 10:20 Accelerators in Analytical and Educational Applications I *Chair: S. Fazinic (Croatia)*

## CONFERENCE ROOM C07 V

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/AE-01	lla, D.	United States of America	40	Materials Science and Engineering research and Education at the Center for Irradiation of Materials of Alabama A&M University
SM/AE-02	Peaslee, G. F.	United States of America	20	An Undergraduate Ion Beam Analysis Laboratory
SM/AE-04	Santana, A. C. V. S.	Brazil	20	Educational Applications on Particle Accelerators in Brazil
SM/AE-05	Przybylowicz, W.	South Africa	20	Nuclear Microprobe Facility at iThemba LABS in Multidisciplinary Applications – Key Elements of a Success Story
10:40 – 12:00	Accelerators in Analytical and Educational Applications II <i>Chair: H. Vera Ruiz (Bolivia)</i>			
No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper

		State/Organization	(1111)	
SM/AE-06	Adam Rebeles, R.	Belgium	20	Educational and Research Aspects of Homemade Modular PC-Controlled Radiochemistry Systems for the Processing of Irradiated Electroplated Solid Cyclotron Targets
SM/AE-07	Fazinic, S.	Croatia	20	Utilization of the RBI Tandem Accelerator Facility for Analytical Applications

## MORNING POSTER SESSION P1

#### 08:30 - 12:30 Plenary Sessions

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AP/INT-01	Dai, Y.	Switzerland	The Status of Studies on Structural Materials under High Energy Proton and Neutron Mixed Spectrum
AP/INT-02	Voyevodin, V.	Ukraine	Modern Status of Accelerators in R&D of Structural Materials for Nuclear Reactors
AP/INT-03	Chmielewski, A.G.	Poland	Electron Beam Processing – What are the Limits
AP/INT-04	Gozani, T.	United States of America	Principles and applications of neutron based inspection techniques
AT/INT-01	Hunt, A.	United States of America	Active Inspection Fission Signatures for the Detection, Quantification and Identification of Fissionable Materials
AT/INT-02	Sharkov, B.	Russian Federation	Multi-Purpose Accelerator-Accumulator ITEP-TWAC for Nuclear Physics and Practical Applications
AT/INT-03	Podlech, H. J.	Germany	The 600 MeV EUROTRANS Proton Driver Linac
AT/INT-04	Wei, J.	China	China High-Intensity Accelerator Technology Developments for Spallation Neutron Source and Accelerator Driven Systems
AT/INT-05	Vlachoudis, V. V.	Switzerland	Commissioning of the New Spallation Target for the n_TOF facility at CERN
ADS/INT-01	Xia, H.	China	The Researches of ADS and the Sustainable Development of the Nuclear Energy
ADS/INT-02	Knebel, J.	Germany	Partitioning and Transmutation Research in Germany
ADS/INT-03	Nema, P. K.	India	ADS Programme and Associated Developments in India- Roadmap and Status of Activities
ADS/INT-04	Takei, H.	Japan	Research and Development Programme on ADS in JAEA
ADS/INT-05	Bhatnagar, V.	European Commission	Overview of EU Research Activities in Transmutation and Innovative Reactor Systems within the Euratom Framework Programmes

## **AFTERNOON SESSIONS**

#### 14:00 - 15:50 ADS Nuclear Data I Chair: L. Ponomarev (Russian Federation)

## IAEA BOARD ROOM C04

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
ADS/ND-01	Xia, H.	China	20	The Nuclear Data Measurement Activities in China
ADS/ND-02	Leray, S.	France	20	High-Energy Nuclear Data for ADS
ADS/ND-03	Yariv, Y.	Israel	20	INC Model for Hadron-Nucleus Reactions
ADS/ND-04	Leinweber, G.	United States of America	20	Nuclear Data Measurements at the RPI LINAC
ADS/ND-05	Singh, B. P.	India	20	A Study of Pre-Equilibrium Emission in Some Proton Induced Reactions: Measurement of Cross-Sections

#### 16:10 - 18:10 ADS Nuclear Data II Chair: S. Leray (France)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
ADS/ND-06	Cugnon, J.	Belgium	20	Production of A+1 and Z+1 Isotopes in Proton-Induced Reaction on AZ Nuclei
ADS/ND-07	Kailas, S.	India	20	Spallation Reaction with Tin Isotopes
ADS/ND-08	Berman, B. L.	United States of America	20	Low-Energy Photonuclear Reactions - A Review
ADS/ND-09	Heffner, M. D.	United States of America	20	The Fission TPC Project
ADS/ND-10	Ponomarev, L.	Russian Federation	20	Comparative Study of ADS-Burners Efficiency with Thermal, Intermediate and Fast Neutron Spectrum for Transmutation of Minor Actinides
ADS/ND-11	Liu, P.	Germany	20	Analyses of Transients for 400 MWth-Class EFIT Accelerator Driven Transmuter with the SIMMER-III Code

## AFTERNOON SATELLITE MEETING II

## Particle Accelerators in Analytical and Educational Applications

14:00 - 15:50 Panel & Round Table Discussion Chair: H. Vera Ruiz (Bolivia)

## CONFERENCE ROOM C07 V

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/AE-08	Rossbach, M.	Germany	15	Ion-beam Analysis for Cultural Heritage Research
SM/AE-09	van den Winkel, P.	Belgium	8	Accelerator in Industrial Research
SM/AE-10	Peaslee, G. F.	United States of America	8	Small Accelerators for Undergraduate Research and Education
SM/AE-11	Fazinic, S.	Croatia	8	Micro Beams in Physical and Chemical Analytical Applications
SM/AE-12	Sobreira, A. C.	Brazil	8	Why Brazilian Graduate Courses do not meet the Needs of the Market for Accelerators

**Panel Members:** 

All participants

## AFTERNOON SATELLITE MEETING III

#### Application of Electron Accelerators: Prospects and Challenges

Calvo, W. A. P.

Machi, S.

#### 14:00 - 15:50 Overview

No of Paper IAEA-CN-173

SM/EB-01

SM/EB-02

SM/EB-04

Overview Chair: A. Chmielevski (Poland)						
Name	Designating Member State/Organization	Time (min) Title of Paper				
Berejka, A. J.	United States of	Prospects and Challenges for the Industrial Use of				

25

30

America

in Japan

Electron Beam Accelerators

Needs and Emerging Opportunities of Electron Beam Accelerators on Radiation Processing Technology for

Industrial and Environmental Applications in South

Growing Industrial Applications of Electron Accelerator

16:10 - 18:00	Application for foods and others fields
	Chair: W. A. P. Calvo (Brazil)

America

Brazil

Japan

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EB-05	Villavicencio, A. L. C. H.	Brazil	20	Evaluation on Physical Properties of Irradiated Cabbage (Brassica Oleracea L var. Acephala)
SM/EB-06	Villavicencio, A. L. C. H.	Brazil	20	Advances of E-beam Processing for Food Preservation in Brazil
SM/EB-07	Mastro, N. L. D.	Brazil	20	Electron Beam Irradiation Effects on some Packaged Dried Food Items
SM/EB-08	Morisseau, D.	France	20	New Applications for Accelerators in Pharmaceutical Processes
SM/EB-31	Zimek, Z.	Poland	20	Electron Accelerator for Radiation Sterilization and R&D Study

## **CONFERENCE ROOM C02 I**

## **AFTERNOON POSTER SESSION P2**

14:00 - 18:00 Accelerator Applications

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AP/P2-01	Guedioura, B.	Algeria	The Profiling Measurements on Metal Ion Distribution in CTA Polymeric Inclusion Membranes by Rutherford Backscattering Spectrometry
AP/P2-02	Hammoudi, A.	Algeria	A Comparative Study of the On-Surface Diffusion of the Ternary System Au/Pd/Si(111) under the Influence of Ion Implantation
AP/P2-03	Siad, M.	Algeria	Nuclear Reaction Analysis (NRA) of Silicon Samples Doped by Trimethylphosphine P(CH3)3
AP/P2-05	Milosavljevic, M.	Serbia	High Ion Irradiation Tolerance of Multilayered AIN/TiN Nanocomposites
AP/P2-07	Eisa, M. E. M.	Sudan	Optimisation of beam optics in the Van de Graaff Accelerator microbeam at iThemba LABS and its Results on the Biomedical Analysis
AP/AM-01	Ryazanov, A. I.	Russian Federation	Influence of Radiation Damage obtained under Fast Charged Particle Irradiation on Plasma-Facing Erosion of Fusion Structural Materials
AP/AM-02	Zschau, HE.	Germany	Application of Accelerators in High Temperature Materials Research
AP/AM-03	Tatlisu, H.	Austria	Non-Destructive Inspection of SiCf/SiC Composites Structure
AP/AM-04	lla, D.	United States of America	MeV Ion Beam Assisted formation of pseudo-crystals
AP/AM-05	Tewari, R.	India	Microstructural Investigation of Zirconium Alloys Subjected to Electron, Light and Heavy lons Irradiations
AP/AM-07	Kiyanagi, Y. K.	Japan	Application of Neutron Transmission Spectroscopic Imaging for Analysis of Texture in Materials for Industrial Use
AP/AM-08	Nsouli, B.	Lebanon	On the Direct Characterization and Quantification of Active Ingredients in Commercial Solid Drugs using PIXE, PIGE and TOF-SIMS Techniques
AP/AM-09	Gulevich, A.	Russian Federation	Electrostatic Accelerators of IPPE for Nuclear Science and Technology
AP/AM-10	Kailas, S.	India	Accelerator Mass Spectrometry programme at Mumbai Pelletron Accelerator Facility
AP/AM-11	Bharuth-Ram, K.	South Africa	Search for Formation of Magnetic Nanoclusters by Ion Implantation into Suitable Insulators

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
SM/AE-01	lla, D.	United States of America	Materials Science and Engineering research and Education at the Center for Irradiation of Materials of Alabama A&M University
SM/AE-02	Peaslee, G. F.	United States of America	An Undergraduate Ion Beam Analysis Laboratory
SM/AE-04	Santana, A. C. V. S.	Brazil	Educational Applications on Particle Accelerators in Brazil
SM/AE-05	Przybylowicz, W.	South Africa	Nuclear Microprobe Facility at iThemba LABS in Multidisciplinary Applications – Key Elements of a Success Story
SM/AE-06	Adam Rebeles, R.	Belgium	Educational and Research Aspects of Homemade Modular PC- Controlled Radiochemistry Systems for the Processing of Irradiated Electroplated Solid Cyclotron Targets
SM/AE-P01	Chhantbar, M.	India	Swift Heavy Ion Irradiation Induced Alteration in Infrared Vibrational Modes for Ti-Substituted Li-AI and Li-Cr Ferrite systems
SM/AE-P02	Storizhko, V. E.	Ukraine	IAP Accelerator Based Microanalytical Facility for Material Science Studies

## MORNING SESSIONS

## IAEA BOARD ROOM C04

#### 08:30 - 10:20 Accelerator Technology Operation, Instrumentation and Control Chair: H. Podlech (Germany)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AT/OC-01	Kreiner, A.J.	Argentina	20	Development of a Tandem-ElectroStatic-Quadrupole Facility for Accelerator-Based BNCT
AT/OC-02	Andriamonje, S.	Switzerland	20	New Detector for Neutron Beam Monitor
AT/OC-04	Popova, I.	United States of America	20	Shielding and Activation Analyses of the SNS Accelerator Facility in the Early Stage of Operations
AT/OC-05	Santana Leitner, M.	United States of America	20	Radiation Protection Commissioning of the Electron Line of the Linac Coherent Light Source

#### 10:40 - 12:30 Accelerator Technology Research and Development I *Chair: A. Kreiner (Argentina)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AT/RD-01	Bechtold, A.	Germany	20	Recent High Power RFQ Development
AT/RD-02	Franklyn, C.	South Africa	20	Utilization of Variable Energy Radio-Frequency Quadrupole Linear Accelerator Systems
AT/RD-03	Maidana, C. O	United States of America	20	Design, Modelling and Simulations of a Cabinet Safe System for a Linear Particle Accelerator of Intermediate-low Energy by Optimization of the Beam Optics
AT/RD-04	Mereghetti, A.	CERN	20	Ruling Factors in the Impact of Collision Debris on the LHC High Luminosity Insertion Magnets
AT/RD-05	D'Andrea, D.	Germany	20	Charged Particle Collisions for Particle Simulation Methods

### MORNING SATELLITE MEETING IV

#### European Fast Neutron Transmutation Reactor Projects (MYRRHA / XT-ADS)

08:30 - 10:20 Session I

Co-Chair: H. Aït-Abderrahim (Belgium) Co-Chair: D. De Bruyn (Belgium)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/ADS-01	Aït-Abderrahim, H.	Belgium	5	Introduction
SM/ADS-02	De Bruyn, D.	Belgium	25	From MYRRHA to XT-ADS, Lessons learned & towards Implementation
SM/ADS-03	Mansani, L.	Italy	20	XT-ADS & EFIT: Two Machines not so Different for the same Goal
SM/ADS-04	Van den Eynde, G.	Belgium	20	The XT-ADS Core Design
SM/ADS-05	Mueller, A.	France	20	The Reliability Requirements of the XT-ADS & EFIT Accelerator
SM/ADS-06	Woaye-Hune, A.	France	20	Feedback to the Designers from Fuel and Material Research and from Safety Calculations

## 10:40 - 11:40 Session II

#### Co-Chair: H. Aït-Abderrahim (Belgium) Co-Chair: D. De Bruyn (Belgium)

No of Paper Designating Member Time Name Title of Paper IAEA-CN-173 State/Organization (min) ISOL@MYRRHA: an Application of the MYRRHA SM/ADS-07 Van Duppen, P. Belgium 20 Accelerator for Nuclear Physics GUINEVERE: Construction of a Zero-Power Pb fast SM/ADS-08 Billebaud, A. 20 France ADS at Mol The Next Step for MYRRHA: the Central Design Team 20 SM/ADS-09 De Bruyn, D. Belgium FP7 Project

#### 11:40 – 12:30 Round Table Discussion

## MORNING SATELLITE MEETING V

## Neutron Based Techniques for the Detection of Illicit Materials and Explosives

#### 08:30 - 10:20 Session I

#### Chair: R. Lanza (United States of America)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EN-01	Sowerby, B. D.	Australia	40	Recent Developments in Fast Neutron Radiography for the Interrogation of Air Cargo Containers
SM/EN-02	Chichester, D. L.	United States of America	20	Active Neutron Interrogation to Detect Shielded Fissionable Material
SM/EN-04	Sudac, D.	Croatia	20	Identification of Materials Hidden behind or in front of Dense Organic Goods

#### 10:40 - 12:00 Session II Chair: R. Mayer (Argentina)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EN-05	Strellis, D. A.	United States of America	40	Air cargo inspection using Pulsed Fast Neutron Analysis
SM/EN-06	Valkovic, V.	Croatia	20	Environmental Security of the Coastal Sea Floor
SM/EN-07	Perot, B.	France	20	Acquisition of Neutron-Induced Gamma Signatures of Chemical Agents

12:00 - 12:30 Round Table Discussion Chair: R. Lanza (United States of America) & R. Mayer (Argentina)

## **MORNING POSTER SESSION P3**

08:30-12:30 Accelerator Applications

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
SM/EB-01	Berejka, A. J.	United States of America	Prospects and Challenges for the Industrial Use of Electron Beam Accelerators
SM/EB-02	Calvo, W. A. P	Brazil	Needs and Emerging Opportunities of Electron Beam Accelerators on Radiation Processing Technology for Industrial and Environmental Applications in South America
SM/EB-04	Machi, S	Japan	Growing Industrial Applications of Electron Accelerator in Japan
SM/EB-05	Villavicencio, A. L. C. H.	Brazil	Evaluation on Physical Properties of Irradiated Cabbage (Brassica Oleracea L var. Acephala)
SM/EB-06	Villavicencio, A. L. C. H	Brazil	Advances of E-beam Processing for Food Preservation in Brazil
SM/EB-07	Mastro, N. L. D.	Brazil	Electron Beam Irradiation Effects on Some Packaged Dried Food Items
SM/EB-08	Morisseau, D.	France	New Applications for Accelerators in Pharmaceutical Processes
SM/EB-12	Gueven, O.	Turkey	Developments in Electron Beam Processing in Polymer and Petroleum Industries
SM/EB-13	Villavicencio, A. L. C. H.	Brazil	E-beam Irradiation of "In Natural" Palm: Texture and Colour Evaluation
SM/EB-14	Spadaro, G.	Italy	Radiation Processing for Synthesis of Structural Materials
SM/EB-15	Sabato, S. F.	Brazil	Effect of Electron Beam in Viscosity Properties of Inverted Liquid Sugar
SM/EB-16	Moura, E. A. B.	Brazil	Changes in Physicochemical, Morphological and Thermal Properties of Electron-Beam Irradiated Ethylene–Vinyl Alcohol Copolymer (EVOH) as a Function of Radiation
SM/EB-17	Faucitano, A.	Italy	Radiation Induced Modification of Silica And Fillosilicates for Rubber-Fillers Composites with Enhanced Compatibility and Radical Reactivity
SM/EB-18	Lavalle, M.	Italy	Energy monitoring device for electron beam energy monitoring
SM/EB-19	Mastral, A. M	Spain	How EB Radiation could affect the Mechanism of PAH Formation

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
SM/EB-20	Behjat, A.	Iran	Study of the Effects of Electron Beam on Heavy Metals in Presence of Scavengers for Decontamination and Purification of the Municipal and Industrial Wastewater
SM/EB-22	Dutskinov, N	Bulgaria	On the Possibility for Application of Electron Accelerators for EBFGT Installation at TPS Svilosa
SM/EB-23	Han, B.	Republic of Korea	Cost assessment of e-beam wastewater treatment
SM/EB-24	Kim, J. K.	Republic of Korea	E-Beam Flue Gas Treatment Plant for "Sviloza Power Station" AD
SM/EB-25	Han, B.	Republic of Korea	Design of Electron Beam Sludge Hygienization Plant
SM/EB-26	Berejka, A. J. Cleland, M.	United States of America	Overview of an Industrial Electron Beam Processing Document
SM/EB-27	Mittendorfer, J.	Austria	High Precision Dose Delivery Using Electron and X-ray Beam Lines
SM/EB-28	Tang, C	China	Electron Linacs for Cargo Inspection and Other Industrial Applications
SM/EB-29	Testoni, A. L	United States of America	Low Voltage, Hermetically Sealed Electron Beam Accelerator for Industrial Applications
SM/EB-30	Kuksanov, N. K.	Russian Federation	High Power ELV Electron Accelerators for Research and Industries
SM/EB-31	Zimek, Z.	Poland	Electron Accelerator for Radiation Sterilization and R&D Study
AP/P3-06	Litterst, F. J.	Germany	Magnetism in Rare Earth Nickelates Studied by Muon Spin Rotation
AP/P3-08	Donepudi, V. R.	India	Transmission Images and Evaluation of Tomographic Imaging Based Scattered Radiation from Biological Materials using 10, 15, 20 and 25 keV Synchrotron X-rays
AP/P3-09	Abd-El-Rehim, H.	Egypt	Production of Super-Absorbed Hydrogels prepared by Electron Beam Irradiation for Agricultural and Industrial Purposes
AP/P3-11	Gharaibeh, M. F.	Jordan	Photoionization Study of Atoms, Molecules and Clusters and their lons in the VUV and Soft X-Ray Region
AP/P3-12	Roumie, M.	Lebanon	Overview of Ion Beam Analysis Applications at the Lebanese Accelerator
AP/P3-14	Calvo, W. A. P.	Brazil	WAXD and FTIR Studies of Electron Beam Irradiated Biodegradable Polymers
AP/IA-03	Basfar, A. A.	Saudi Arabia	Electron Beam Flue Gas Treatment (EBFGT) Technology for Simultaneous Removal of SO2 and NOx from Combustion of Liquid Fuels: Technical and Economic Evaluation
AP/IA-04	Cleland, M.	United States of America	Radiation Curing of Composites for Vehicle Component and Vehicle Manufacture

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AP/IA-05	Tsvetkova, T.	Bulgaria	Focused Ion Beam Writing of Optical Patterns in Amorphous Silicon Carbide
AP/IE-01	Fuller, M. K.	United States of America	Long-Lifetime High-Yield Neutron Generators using the DD reaction
AP/IE-02	Granada, J. R.	Argentina	Neutron Transmission: A Very Powerful Technique at Small Accelerator-Based Neutron Sources
AP/IE-03	Mocko, M.	United States of America	Nuclear Cross-Section Measurements at the Manuel Lujan Jr. Neutron Scattering Center
AP/IE-04	Vavpetic, P.	Slovenia	Application of Nuclear Microprobe in Biomedical, Industrial and Fusion Research
AP/IE-05	Buffler, A.	South Africa	A New Positron Emission Particle Tracking Facility at iThemba LABS

## **AFTERNOON SESSIONS**

#### 14:00 - 15:50 Different Aspects of Industrial Accelerator Applications I Chair: S. Kailas (India)

No of Paper IAEA-CN-165	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/IA-03	Basfar, A. A.	Saudi Arabia	20	Electron Beam Flue Gas Treatment (EBFGT) Technology for Simultaneous Removal of $SO_2$ and $NO_x$ from Combustion of Liquid Fuels: Technical and Economic Evaluation
AP/IA-04	Cleland, M.	United States of America	20	Radiation Curing of Composites for Vehicle Component and Vehicle Manufacture
AP/IA-05	Tsvetkova, T.	Bulgaria	20	Focused Ion Beam Writing of Optical Patterns in Amorphous Silicon Carbide
AP/IA-12	Hamm, R. W.	United States of America	20	Review of Industrial Accelerators and their Applications
AP/IA-13	lla, D.	United States of America	20	Ion Beam Processing of Polymers a Biomaterial

#### 16:10 - 18:00 Accelerator Applications: Interdisciplinary Endeavours Chair: M. Cleland (United States of America)

No of Paper IAEA-CN-165	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/IE-01	Fuller, M. K.	United States of America	20	Long-Lifetime High-Yield Neutron Generators using the DD reaction
AP/IE-02	Granada, J. R.	Argentina	20	Neutron Transmission: A Very Powerful Technique at Small Accelerator-Based Neutron Sources
AP/IE-03	Mocko, M.	United States of America	20	Nuclear Cross-Section Measurements at the Manuel Lujan Jr. Neutron Scattering Center
AP/IE-04	Vavpetic, P.	Slovenia	20	Application of Nuclear Microprobe in Biomedical, Industrial and Fusion Research
AP/IE-05	Buffler, A.	South Africa	20	A New Positron Emission Particle Tracking Facility at iThemba LABS

## AFTERNOON SATELLITE MEETING V

## Neutron Based Techniques for the Detection of Illicit Materials and Explosives

#### 14:00 - 15:50 Session III

Chair: B. Sowerby (Australia)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Litle of Paper
SM/EN-08	Lanza, R. C.	United States of America	40	Low Dose Transmission Radiography for Detection of SNM using Monoenergetic Gamma Rays
SM/EN-09	Rosenstock, W.	Germany	20	Detection of Concealed Fissionable Material by Delayed Neutron Counting
SM/EN-10	Mayer, R. E.	Argentina	20	Active Neutron Interrogation Approach to Detect Special Nuclear Material in Containers
SM/EN-20	Bom, V.R.	Netherlands	20	Fast Neutron Imaging for SNM Detection

#### 16:10 - 17:30 Session IV

Chair: T. Gozani (United States of America)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EN-11	Vakhtin, D. N.	Russian Federation	40	Detection of Explosives and Other Illicit Materials by Nanosecond Neutron Analysis
SM/EN-12	Franklyn, C. B.	South Africa	20	Operation of a Variable Energy RFQ Accelerator System to Produce Intense Beams of Neutrons for Cargo Interrogation
SM/EN-13	Goldberg, M. B.	Israel	20	A Dual-Purpose Ion-Accelerator for Nuclear-Reaction- Based Explosives- and SNM-Detection in Massive Cargo

17:30 - 18:00 Round Table Discussion Chair: B. Sowerby (Australia) & T. Gozani (United States of America)

## **CONFERENCE ROOM C02 I**

## **AFTERNOON POSTER SESSION P4**

14:00 - 18:00 ADS and Spallation Reactions

No of Paper IAEA-CN-165	Name	Designating Member State/Organization	Title of Paper
ADS/P4-01	Volev, K. N.	Bulgaria	Modelling of Radiation Effects in Materials for Accelerator- Driven Systems based on Th-U Fuel Cycle.
ADS/P4-02	Prasad, R.	India	Measurement of Cross-Sections in some Reactions in 16O+181Ta System at Energies ~5MeV/nucleon
ADS/P4-05	Singh, P.	India	Developmental Studies of a High Current Proton Linac for ADS Program
ADS/P4-06	Takei, H.	Japan	Estimation of Acceptable Beam Trip Frequencies of Accelerators for ADS and Comparison with Experimental Data of Accelerators
ADS/P4-07	Golubev, A. A.	Russian Federation	Application of ITEP TWAC Accelerator Beams for Diagnostics of Fast Process
ADS/P4-08	Becares, V.	Spain	Reactivity Monitoring with Imposed Beam Trips and Pulsed Mode Detectors in the Subcritical Experiment YALINA-Booster
ADS/P4-09	Villamarin, D.	Spain	Current-to-flux experimental results in the YALINA-Booster subcritical assembly
ADS/P4-10	Berglöf, C.	Sweden	Neutron Noise Measurements in the YALINA-Booster Experiments
ADS/P4-12	Cole, P.	United States of America	Optical Restoration of Irradiated Lead Fluoride Crystals
ADS/P4-14	Aliberti, G.	United States of America	Deterministic Model for the Analysis of YALINA-Booster Experiments with the ERANOS code System
ADS/P4-15	Abe, K.	Japan	Study of Subcriticality Control by Hf and Gd Hydrides for Accelerator Driven System
ADS/P4-16	Aizawa, N.	Japan	Precisions Improvement of Dynamic Calculation Code for Accelerator Driven System
ADS/P4-17	Zanini, L.	Switzerland	A Neutron Booster for the SINQ Neutron Source using thin Fissile Layers
ADS/P4-19	Govers, K.	Belgium	Practical Use of Atomic-Scale Simulations for MYRRHA/XT- ADS Evolutionary and Innovative Nuclear Fuels
ADS/P4-20	Lemehov, S. E.	Belgium	Progress and Advancements in Fuel Performance Modelling for MYRRHA/XT-ADS
ADS/P4-21	Baznat, M. I.	Moldova	Complex particle production by CEM03.03
ADS/P4-22	Gudima, K. K.	Moldova	Benchmarking the CEM03.03 event generator
ADS/ND-01	Xia, H.	China	The Nuclear Data Measurement Activities in China
ADS/ND-02	Leray, S.	France	High-Energy Nuclear Data for ADS

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
ADS/ND-03	Yariv, Y.	Israel	ISABEL coupled to De-excitation Models
ADS/ND-04	Leinweber, G.	United States of America	Nuclear Data Measurements at the RPI LINAC
ADS/ND-05	Singh, B. P.	India	A Study of Pre-Equilibrium Emission in Some Proton Induced Reactions: Measurement of Cross-Sections
ADS/ND-06	Cugnon, B.	Belgium	Production of A+1 and Z+1 Isotopes in Proton-Induced Reaction on AZ Nuclei
ADS/ND-07	Kailas, S.	India	Spallation Reaction with Tin Isotopes
ADS/ND-08	Berman, B. L.	United States of America	Low-Energy Photonuclear Reactions—A Review
ADS/ND-09	Heffner, M. D.	United States of America	The Fission TPC Project
ADS/ND-10	Ponomarev, L.	Russian Federation	Comparative Study of ADS-Burners Efficiency with Thermal, Intermediate and Fast Neutron Spectrum for Transmutation of Minor Actinides
ADS/ND-11	Liu, P.	Germany	Analyses of Transients for 400MWth-Class EFIT Accelerator Driven Transmuter with the SIMMER-III Code
ADS/ET-01	Baylac, M.	France	The GENEPI-3C Accelerator for the GUINEVERE Project
ADS/ET-02	Kiyavitskaya, H.	Belarus	Application of High Intensity Neutron Generator for the Investigations of ADS Neutronics
ADS/ET-03	Pyeon, C. H.	Japan	Subcriticality Measurements in Accelerator-Driven System at Kyoto University Critical Assembly
ADS/ET-04	Fernandez-Ordonez, M.	Spain	Reactivity Monitoring of a Subcritical Assembly Using Beam- Trips and Current-mode Fission Chambers: The Yalina-Booster Program.
ADS/ET-05	Berglöf, C.	Sweden	Pulsed Neutron Source Reference Measurements in the Subcritical Experiment YALINA-Booster
ADS/ET-06	Gohar, Y.	United States of America	YALINA Booster Conversion Project
ADS/ET-07	Talamo, A.	United States of America	Deterministic Analyses of Yalina-Thermal Subcritical Assembly with DRAGON-PARTISN Software
ADS/ET-08	Pitcher, E. J.	United States of America	Analysis of Molybdenum-99 Production Capability in the Materials Test Station
ADS/ET-09	Wagner, W.	Switzerland	The MEGAPIE Operation Synthesis
ADS/ET-10	Wohlmuther, M.	Switzerland	MEGAPIE on the way to PIE

## **MORNING SESSIONS**

#### 08:30 - 10:20 ADS Experiments I Chair: P.K. Nema (India)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
ADS/ET-01	Baylac, M.	France	20	The GENEPI-3C Accelerator for the GUINEVERE Project
ADS/ET-02	Kiyavitskaya, H.	Belarus	20	Application of High Intensity Neutron Generator for the Investigations of ADS Neutronics
ADS/ET-03	Pyeon, C. H.	Japan	20	Subcriticality Measurements in Accelerator-Driven System at Kyoto University Critical Assembly
ADS/ET-05	Berglöf, C.	Sweden	20	Pulsed Neutron Source Reference Measurements in the Subcritical Experiment YALINA-Booster
ADS/ET-04	Fernandez-Ordonez, M.	Spain	20	Reactivity Monitoring of a Subcritical Assembly Using Beam-Trips and Current-mode Fission Chambers: The Yalina-Booster Program.

#### 10:40 - 12:30 ADS Experiments II Chair: M. Baylac (France)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
ADS/ET-06	Gohar, Y.	United States of America	20	YALINA-Booster Conversion Project
ADS/ET-07	Talamo, A.	United States of America	20	Deterministic Analyses of Yalina-Thermal Subcritical Assembly with DRAGON-PARTISN Software
ADS/ET-08	Pitcher, E. J.	United States of America	20	Analysis of Molybdenum-99 Production Capability in the Materials Test Station
ADS/ET-09	Wagner, W.	Switzerland	20	The MEGAPIE Operation Synthesis
ADS/ET-10	Wohlmuther, M.	Switzerland	20	MEGAPIE on the Way to PIE

## MORNING SATELLITE MEETING III

### Application of Electron Accelerators: Prospects and Challenges

#### 08:30 - 10:20 Applications for Polymers I Chair: B. Han (Republic of Korea)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EB-12	Gueven, O.	Turkey	20	Developments in Electron Beam Processing in Polymer and Petroleum Industries
SM/EB-13	Villavicencio, A. L. C. H.	Brazil	20	E-beam Irradiation of "In Natural" Palm: Texture and Colour Evaluation
SM/EB-14	Spadaro, G.	Italy	20	Radiation Processing for Synthesis of Structural Materials
SM/EB-15	Sabato, S. F.	Brazil	20	Effect of Electron Beam in Viscosity Properties of Inverted Liquid Sugar
SM/EB-16	Moura, E. A. B.	Brazil	20	Changes in Physicochemical, Morphological and Thermal Properties of Electron-Beam Irradiated Ethylene–Vinyl Alcohol Copolymer (EVOH) as a Function of Radiation

#### 10:40 - 12:30 Applications for Polymers II & Environmental Applications I *Chair: O. Gueven (Turkey)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EB-17	Faucitano, A.	Italy	20	Radiation Induced Modification of Silica And Fillosilicates for Rubber-Fillers Composites with Enhanced Compatibility and Radical Reactivity
SM/EB-18	Lavalle, M.	Italy	20	'Energy monitoring device' for electron beam energy monitoring
SM/EB-19	Mastral, A. M.	Spain	20	How EB Radiation could affect the Mechanism of PAH Formation
SM/EB-20	Behjat, A.	Iran	20	Study of the Effects of Electron Beam on Heavy Metals in Presence of Scavengers for Decontamination and Purification of the Municipal and Industrial Wastewater
SM/EB-22	Dutskinov, N.	Bulgaria	20	On the Possibility for Application of Electron Accelerators for EBFGT Installation at TPS Svilosa

## MORNING SATELLITE MEETING V

## Neutron Based Techniques for the Detection of Illicit Materials and Explosives

#### 08:30 - 10:20 Session V

Chair: C. Franklin (South Africa)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EN-14	Mor, I. M.	Israel	40	New Developments in Pulsed Fast-Neutron Transmission Spectroscopy and Imaging
SM/EN-15	Vartsky, D.	Israel	20	Signal and Noise Analysis in TRION Detector
SM/EN-16	Womble, P. C.	United States of America	20	The Doppler-broadening of Gamma-ray Spectra in Neutron-Based Explosives Detection Systems

## 10:40 - 12:00 Session VI

#### Chair: D. Vakhtin (Russian Federation)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EN-17	Le Tourneur, P.	France	40	ULIS: A Portable Neutron Device for Explosive and Chemical Detection
SM/EN-18	Sved, J.	Germany	20	Applications for Gas-Plasma Target Neutron Generators
SM/EN-19	Gribkov, V. A.	Russian Federation	20	Powerful Nanosecond Single-Shot Technique for Detection of Illicit Materials and Explosives

12:00 - 12:30 Round Table Discussion Chair: C. Franklin (South Africa) & D. Vakhtin (Russian Federation)

## **MORNING POSTER SESSION P5**

08:30-12:30 Accelerator Applications & Accelerator Technology

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AT/P5-01	Dziuba, F.	Germany	Development of Superconducting CH-Cavities for the EUROTRANS and IFMIF Project
AT/P5-02	Deb, P.	India	Control of Amplified Spontaneous Emission in the Laser System for Intense Laser Plasma Acceleration Research
AT/P5-03	Alexeev, N.	Russian Federation	New Technology of Nuclei Stuffing for High Power Beam Generation in ITEP-TWAC Facility
AT/P5-04	Dubrovsky, A.	Russian Federation	Innovative Powerful Pulsed Technique, Based on a Plasma Accelerator, for Simulation of Radiation Damage and Testing of Materials for Nuclear Systems
AT/P5-05	Baturin, V. A.	Ukraine	H - Ion Source with Inverse Gas Magnetron Geometry for SNS Project
AT/P5-06	Hussain, K.	Bangladesh	Design and Construction of a New Ion Beam Analysis (IBA) Facility at the 3 MV Van de Graaff Accelerator of Bangladesh Atomic Energy Commission
AT/P5-07	Ahmed, I.	Pakistan	Halo and Tail Generation Study in CLIC
AT/P5-08	Mosu, D. V.	Romania	Improvements of the Ion Beam Quality of the Magurele FN Tandem Accelerator
AT/P5-09	Fertman, A. D.	Russian Federation	Activation Method for Measuring Ranges of Heavy lons in Solids
AT/P5-10	Dryapachenko, I.	Ukraine	Tandem Accelerator Beam Tests of New Fast Neutron Scintillators
AT/P5-11	Avila-Sobarzo, M. J.	Chile	Alternative On-Line Cyclotron Beam Intensity and Exposure Rate Levels Operative Monitoring
AT/P5-12	Ramirez-Jimenez, F. J.	Mexico	PIN Photo-Diodes as Radiation Detectors in Accelerator Applications
AT/P5-13	Janney, J.	United States of America	Thermal Stress Analysis of a 3 MW Rotating Solid Target
AT/P5-14	Abdelrahman, M.	Egypt	Design of Proposed DC Low Voltage Acceleration System
AT/P5-15	Ene, D.	France	Lay-out of the EURISOL Experimental Hall
AT/P5-16	Patel, P. J.	India	A Regulated High Voltage Power Supply for Accelerator Driven System
AT/P5-17	Roychowdhury, P.	India	High Intensity ECR Proton Source Development for LEHIPA-ADS
AT/P5-18	Malhotra, S	India	Electromagnetic Design and Development of Quadrupole Focussing Lenses for Drift Tube Linac

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AT/P5-19	Storizhko, V. E.	Ukraine	Development of the High-Brightness Ion Source
AT/OC-01	Kreiner, A. J.	Argentina	Development of a Tandem ElectroStatic Quadrupole Facility for Accelerator-Based BNCT
AT/OC-02	Andriamonje, S.	Switzerland	New Detector for Neutron Beam Monitor
AT/OC-03	Mordyk, S.	Ukraine	Development of the High-Brightness Ion Source
AT/OC-04	Popova, I.	United States of America	Shielding and Activation Analyses of the SNS Accelerator Facility in the Early Stage of Operations
AT/OC-05	Santana, M.	United States of America	Radiation Protection Commissioning of the Electron Line of the Linac Coherent Light Source
AT/RD-01	Bechtold, A.	Germany	Recent High Power RFQ Development
AT/RD-02	Franklyn, C. B	South Africa	Utilization of Variable Energy Radio-Frequency Quadrupole Linear Accelerator Systems
AT/RD-03	Maidana, C. O.	United States of America	Design, Modelling and Simulations of a Cabinet Safe System for a Linear Particle Accelerator of Intermediate-low Energy by Optimization of the Beam Optics
AT/RD-04	Mereghetti, A.	Switzerland	Ruling Factors in the Impact of Collision Debris on the LHC High Luminosity Insertion Magnets
AT/RD-05	D'Andrea, D.	Germany	Charged Particle Collisions for Particle Simulation Methods
AT/RD-06	David, JC.	France	In-Target Yields for RIB Production with EURISOL
AT/RD-07	Meusel, O. M.	Germany	Proton LINAC for the Frankfurt Neutron Source FRANZ
AT/RD-08	Ibrahim, F.	France	The ALTO Facility for the Production of Rare Nuclei
AT/RD-09	Bryazgin, A. A.	Russian Federation	Powerful Industrial Electron Accelerators Type ILU for Energy up to 10 MeV
AT/RD-10	Seidel, M.	Switzerland	Performance of the PSI High Power Accelerator
AP/P5-01	David, C.	India	A Study of Diffusion Behaviour of Silicon in D9 Steel
AP/P5-03	Friedland, E.	South Africa	Diffusion of Fission Products through Silicon Carbide
AP/P5-05	Bosnar, D.	Croatia	Applications of Positron Annihilation Spectroscopy
AP/P5-06	Havranek, V.	Czech Republic	Laboratory of Nuclear Analytical Methods of Nuclear Physics Institute ASCR

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
AP/P5-07	Kulevoy, T. V.	Russian Federation	ITEP Heavy Ion RFQ – Experimental Facility for Reactor Material Investigation under Irradiation
AP/P5-08	Yu, L.	Thailand	A Basic Investigation on Low-energy Ion Irradiation Effect on Lives
AP/P5-09	Avetissian, H. K.	Armenia	Accelerator Beams for X-Ray-Gamma Lasers
AP/DM-01	Zheng, Y.	China	Heavy Ion Irradiation Simulation of High Dose Irradiation Induced Radiation Effects in Materials*
AP/DM-02	Ryazanov, A. I.	Russian Federation	Modeling of Cascades and Sub-cascade Formation in Materials Irradiated by Fast Charged Particles on Accelerators and by Fast Neutrons using Fission and Fusion
AP/DM-04	Demina, E. V.	Russian Federation	Application of a Plasma Accelerator of the Dense Plasma Focus Type in Simulation of Radiation Damage and Testing of Materials for Nuclear Systems
AP/DM-05	King, D. B.	United States of America	Test Simulation of Neutron Damage to Electronic Components and Circuits Using Accelerator Facilities
AP/IA-06	Kraïem, M.	Tunisia	Use of the Accelerators in the Socio-Economic Development in Tunisia
AP/IA-07	Xiao, G. Q.	China	Ion Cancer Therapy in China
AP/IA-08	Kim, K.	Republic of Korea	The Proton Engineering Frontier Project
AP/IA-10	Leeb, H.	Austria	Opportunities of Basic and Applied Research at MedAustron
AP/IA-11	Martino, J.	France	ARRONAX, a 70 MeV Cyclotron for Radiochemistry and Nuclear Medicine
AP/IA-12	Hamm, R. W.	United States of America	Review of Industrial Accelerators and their Applications
AP/IA-13	lla, D.	United States of America	Ion Beam Processing of Polymers a Biomaterial
AP/IE-06	Lehmann, E. H.	Switzerland	Neutron Imaging at Spallation Neutron Sources
AP/IE-08	Boudard, A. B.	France	Simulation of Light Ion Collisions from Intra Nuclear Cascade (INCL-Fermi Breakup) Relevant for Medical Irradiations and Radioprotection
AP/IE-09	Hoorani, H.	SESAME	Scientific Program of SESAME Project

## **AFTERNOON SESSIONS**

## IAEA BOARD ROOM C04

#### 14:00 - 15:50 Simulation of Radiation Damage and Testing of Materials for Nuclear Systems *Chair: Y. Dai (Switzerland)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/DM-01	Zheng, Y.	China	20	Heavy Ion Irradiation Simulation of High Dose Irradiation Induced Radiation Effects in Materials
AP/DM-02	Ryazanov, A. I.	Russian Federation	20	Modelling of Cascades and Sub-cascade Formation in Materials Irradiated by Fast Charged Particles on Accelerators and by Fast Neutrons using Fission and Fusion
AP/DM-04	Demina, E. F.	Russian Federation	20	Application of a Plasma Accelerator of the Dense Plasma Focus Type in Simulation of Radiation Damage and Testing of Materials for Nuclear Systems
AP/DM-05	King, D. B.	United States of America	20	Test Simulation of Neutron Damage to Electronic Components and Circuits Using Accelerator Facilities
16:10 - 18:00	Different Aspects of In Applications II Chair: J. Wei (China)	dustrial Accelerator		

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paner
AP/IA-06	Kraïem, M.	Tunisia	20	Use of the Accelerators in the Socio-Economic Development in Tunisia
AP/IA-07	Xiao, G. Q.	China	20	Accelerator for medical therapy in China
AP/IA-08	Kim, K.	Republic of Korea	20	The Proton Engineering Frontier Project
AP/IA-10	Leeb, H.	Austria	20	Opportunities of Basic and Applied Research at MedAustron
AP/IA-11	Martino, J.	France	20	ARRONAX, a 70 MeV Cyclotron for Radiochemistry and Nuclear Medicine

## AFTERNOON SATELLITE MEETING III

## CONFERENCE ROOM C02 I

## Application of Electron Accelerators: Prospects and Challenges

14:00 – 15:50 Environmental applications II Chair: S. Machi (Japan)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper	
SM/EB-23	Han, B.	Republic of Korea	20	Cost assessment	of e-beam wastewater treatment
SM/EB-24	Kim, J. K.	Republic of Korea	20	E-Beam Flue Gas Station" AD	s Treatment Plant for "Sviloza Powe
SM/EB-25	Han, B.	Republic of Korea	20	Design of Electror	n Beam Sludge Hygienization Plant
16:10 - 16:50	A Review of the Ir Processing Docur Chair: G. Spadaro				
No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper	
SM/EB-26	Berejka, A. J. Cleland, M.	United States of America	40	Overview of an Document	Industrial Electron Beam Processing
16:50 - 18:00	Round Table Discussion: Radiation processing for enhancing development of less developed countries Radiation processing for sustainable development <i>Chair: A. Behjat (Iran)</i>				
Panel Member	s:				
W. Calvo, Bra	azil	N. Ibrahim, Malaysia	O. Gue	ven, Turkey	A. J. Berejka, United States of America
M. Haji-Saeid, IAEA		A. Chmielewski, Poland		a Ruiz, Bolivia	

## **AFTERNOON SATELLITE MEETING I**

## **CONFERENCE ROOM C07 IV**

## **Nuclear Spallation Reactions**

14:00 – 15:50 Nuclear Spallation Reactions III Benchmark strategy Figures of Merit Models: Objectives, methodology, expected outcomes Chair: D. Filges (Germany)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/SR-12	Khandaker, M.	IAEA	20	Tools for Benchmarking of Spallation Models – First Results

16:10 - 18:00 Nuclear Spallation Reactions IV Round Table Discussion: Conclusions & Plans for the future A Common Platform for Dissemination of the Benchmark Results Chair: Y. Yariv (Israel)

#### **Panel Members:**

All participants

## AFTERNOON SATELLITE MEETING VI

## CONFERENCE ROOM C07 V

## Applications of Synchrotron Radiation in Natural and Applied Sciences

#### 14:00 - 15:50 Session I

Chair: K. Toukan (Jordan)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/SA-01	Hoorani, H.	SESAME	20	Scientific Program of SESAME Project
SM/SA-02	Cutler, J.	Canada	20	The Canadian Light Source: A Novel Tool in the Search for Environmental Sustainability
SM/SA-03	Duke, E.	United Kingdom	20	Diamond Light Source- Status and Applications in Life Sciences
SM/SA-04	Paolucci, G.	Italy	20	The Elettra and FERMI: two Accelerator-based Radiation Sources in Trieste

16:10 - 18:00 Round Table Discussion:

Applications of synchrotron radiation in the field of natural and applied sciences Chair: C. Llewellyn Smith (United Kingdom)

## **MORNING SESSIONS**

## IAEA BOARD ROOM C04

#### 08:30 - 10:20 Accelerator Technology Research and Development II *Chair: A. Mueller (France)*

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AT/RD-06	David, J. C.	France	20	In-Target Yields for RIB Production with EURISOL
AT/RD-07	Meusel, O. M.	Germany	20	Proton LINAC for the Frankfurt Neutron Source FRANZ
AT/RD-08	Ibrahim, F.	France	20	The ALTO Facility for the Production of Rare Nuclei
AT/RD-09	Bryazgin, A. A.	Russian Federation	20	Powerful Industrial Electron Accelerators Type ILU for Energy up to 10 MeV
AT/RD-10	Seidel, M.	Switzerland	20	Performance of the PSI High Power Accelerator

#### 10:40 - 12:30 Accelerator Technology & Accelerator Applications Chair: E. Pitcher (United States of America)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
AP/IE-06	Lehmann, E. H.	Switzerland	20	Neutron Imaging at Spallation Neutron Sources
AP/AM-11	Bharuth-Ram, K.	South Africa	20	Search for Formation of Magnetic Nanoclusters by Ion Implantation into Suitable Insulators
AP/IE-08	Boudard, A. B.	France	20	Simulation of Light Ion Collisions from Intra Nuclear Cascade (INCL-Fermi Breakup) Relevant for Medical
AP/IE-09	Hoorani, H.	SESAME	20	Scientific Program of SESAME Project

### MORNING SATELLITE MEETING III

#### Application of Electron Accelerators: Prospects and Challenges

08:30 - 10:20 Accelerator Technology Chair: Z. Zimek (Poland)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
SM/EB-27	Mittendorfer, J.	Austria	20	High Precision Dose Delivery Using Electron and X-ray Beam Lines
SM/EB-28	Tang, C.	China	20	Electron Linacs for Cargo Inspection and Other Industrial Applications
SM/EB-29	Testoni, A.L	United States of America	20	Low Voltage, Hermetically Sealed Electron Beam Accelerator for Industrial Applications
SM/EB-30	Kuksanov, N. K.	Russian Federation	20	High Power ELV Electron Accelerators for Research and Industries

10:40 - 12:30 Round Table Discussion: Challenges for expanding industrial EB applications Challenges for EB accelerator for industrial applications Possible roles of IAEA for promotion of industrial EB application Chair: A. J. Berejka (United States of America)

Panel Members:

- W. Calvo, Brazil
- S. Machi, Japan,
- N. Ibrahim, Malaysia
- A. Chmielewski, Poland

O. Gueven, Turkey

M. Cleland, United States of America

## **MORNING POSTER SESSION P6**

#### 08:30 - 12:30 Detection of Illicit Materials and Explosives

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
SM/EN-P03	Megahid, R.	Egypt	Low Cost Combined Systems for Detection of Contraband Hidden in Cargo Containers
SM/EN-P04	Meskhi, L. K.	Georgia	Portable Search Devices of Wide Application on the Basis of Radioisotope Switchable Neutron Source
SM/EN-P06	Sved, J.	Germany	ContainerProbe-Net
SM/EN-P07	Das, B. K.	India	Explosive Detection using 14 MeV Neutron Generator
SM/EN-P09	El-Bakkoush, F. A.	Libya	Current Research Activities for Landmine Detection by Nuclear Technique in Libya
SM/EN-P10	Miklaszewski, R.	Poland	Monte Carlo Modelling of Fast Neutron Scattering by Various Compounds in View of Elaboration of a Single Shot Inspection System
SM/EN-P11	Belichenko, S.	Russian Federation	Tagged Neutrons from Portable Neutron Generator for Detection of High Explosives and Fissile Materials in Cargo Containers
SM/EN-P13	Ambrosi, R.	United Kingdom	Neutron Tests of a Microchannel Plate Detector and Amorphous Silicon Pixel Array Readout for Neutron Radiography
SM/EN-P14	Dale, D. S.	United States of America	Studies of Polarized Photofission
SM/EN-P16	Kessler, B.	United States of America	Algorithmic Classification of Active/Inactive Unexploded Ordnance Using Neutron Analysis Data
SM/EN-P17	Krishnan, M.	United States of America	A Fast Pulsed Neutron Source Driven by a Pulsed Current Transformer
SM/EN-P18	Strellis, D. A.	United States of America	Dynamic Temporal Enhancement of Material Signatures in a Pulsed Neutron Source Application
SM/EN-01	Sowerby, B. D.	Australia	Recent Developments in Fast Neutron Radiography for the Interrogation of Air Cargo Containers
SM/EN-02	Chichester, D. L.	United States of America	Active Neutron Interrogation to Detect Shielded Fissionable Material
SM/EN-04	Sudac, D.	Croatia	Identification of Materials Hidden behind or in front of a Dense Organic Goods

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Title of Paper
SM/EN-05	Strellis, D. A.	United States of America	Air cargo inspection using Pulsed Fast Neutron Analysis
SM/EN-06	Valkovic, V.	Croatia	Environmental Security of the Coastal Sea Floor
SM/EN-07	Perot, B.	France	Acquisition of Neutron-Induced Gamma Signatures of Chemical Agents
SM/EN-08	Lanza, R. C.	United States of America	Low Dose Transmission Radiography for Detection of SNM using Monoenergetic Gamma Rays
SM/EN-09	Rosenstock, W.	Germany	Detection of Concealed Fissionable Material by Delayed Neutron Counting
SM/EN-10	Mayer, R. E.	Argentina	Active Neutron Interrogation Approach to Detect Special Nuclear Material in Containers
SM/EN-11	Vakhtin, D. N.	Russian Federation	Detection of Explosives and Other Illicit Materials by Nanosecond Neutron Analysis
SM/EN-12	Franklyn, C. B.	South Africa	Operation of a Variable Energy RFQ Accelerator System to Produce Intense Beams of Neutrons for Cargo Interrogation
SM/EN-13	Goldberg, M. B.	Israel	A Dual-Purpose Ion-Accelerator for Nuclear-Reaction-Based Explosives- and SNM-Detection in Massive Cargo
SM/EN-14	Mor, I. M.	Israel	New Developments in Pulsed Fast-Neutron Transmission Spectroscopy and Imaging
SM/EN-15	Vartsky, D.	Israel	Signal and Noise Analysis in TRION Detector
SM/EN-16	Womble, P.C.	United States of America	The Doppler-broadening of Gamma-ray Spectra in Neutron- Based Explosives Detection Systems
SM/EN-17	Le Tourneur, P.	France	ULIS: A Portable Neutron Device for Explosive and Chemical Detection
SM/EN-18	Sved, J.	Germany	Applications for Gas-Plasma Target Neutron Generators
SM/EN-19	Gribkov, V. A.	Russian Federation	Powerful Nanosecond Single-Shot Technique for Detection of Illicit Materials and Explosives
SM/EN-20	Bom, V.R.	Netherlands	Fast Neutron Imaging for SNM Detection

## AFTERNOON SESSIONS

## IAEA BOARD ROOM C04

#### 14:00 - 15:50 Session S: Summary Chair: C. Llewellyn Smith (United Kingdom)

No of Paper IAEA-CN-173	Name	Designating Member State/Organization	Time (min)	Title of Paper
S-01	Nema, P. K.	India	20	ADS Summary
S-02	Ryazanov, A.	Russian Federation	20	Accelerator Applications Summary
S-03	Kreiner, A. J.	Argentina	20	Accelerator Technology Summary
CL-01	Cetto, A. M.	IAEA		
CL-02	Cole, P.	ANS		

## **Poster Sessions Overview**

## COCIOHAHAMAMAY

Day/Date	Monday 4 May 2009	Tuesday 5 May 2009	Wednesda 6 May 200	y Thursday 9 7 May 2009	Friday 8 May 2009
08:30-10:20		P1 Plenary Sessions	P3 Accelerato Applications Application Electron Accelerator Prospects a Challenge	a P5   of Accelerator   Applications & Accelerator   s: Accelerator   nd Technology	P6 Neutron Based Techniques for the Detection of Illicit Materials and Explosives
Coffee Break					
10:40-12:30		P1 Plenary Sessions	P3 Accelerato Applications Application Electron Accelerator Prospects a Challenge	a P5   of Accelerator   Applications & Accelerator   a Accelerator   rs: Technology	P6 Neutron Based Techniques for the Detection of Illicit Materials and Explosives
Lunch		•			
14:00-15:50		P2 Accelerator Applications	P4 ADS & Spalla Reactions		
Coffee Break		•			•
16:10-18:00		P2 Accelerator Applications	P4 ADS & Spalla Reactions		
Break		-		-	-
	Reception	Concert	Dinner		Russian Choir

## **Poster Listing**

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AP/INT-02	AP/P2-02	SM/EB-02
AP/INT-03	AP/P2-03	SM/EB-04
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AT/INT-01	AP/P2-07	SM/EB-06
AT/INT-02	AP/AM-01	SM/EB-07
AT/INT-03	AP/AM-02	SM/EB-08
AT/INT-04	AP/AM-03	SM/EB-12
AT/INT-05	AP/AM-04	SM/EB-13
ADS/INT-01	AP/AM-05	SM/EB-14
ADS/INT-02	AP/AM-07	SM/EB-15
ADS/INT-03	AP/AM-08	SM/EB-16
ADS/INT-04	AP/AM-09	SM/EB-17
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	SM/AE-01	SM/EB-20
	SM/AE-02	SM/EB-22
	SM/AE-04	SM/EB-23
	SM/AE-05	SM/EB-24
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AP/IE-08	Wednesday AM	AP/IE-03
AP/IE-09	AP/IE-05	AP/IE-04

Wednesday PM	Thursday AM	Friday AM
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ADS/P4-05	AT/P5-03	SM/EN-P06
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ADS/ND-06	AT/RD-02	SM/EN-14
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## SOCIAL EVENTS INDEX

### Monday, 4 May 2009

18:30 - 20:30 Reception

VIC Restaurant, F Building

## Tuesday, 5 May 2009

19:30 – 21:30	Concert
	Praelatensaal at Schottenstift
	Freyung 6, 1010 Vienna

## Wednesday, 6 May 2009

20:00 - 22:30	Conference Diner
	Esterhazykeller
	Haarhof 1, 1010 Vienna

## Friday, 8 May 2009

15:00 – 16:00	Russian Choir
	CONFERENCE ROOM C02 I