



International Conference on

**RECENT DEVELOPMENTS AND
APPLICATIONS OF NUCLEAR
TECHNOLOGIES**

*15 – 17 September 2008,
Białowieża, Poland*

Conference Program

International Conference on Recent Developments and Applications of Nuclear Technologies
Conference Program

Sunday 14.09.2008

16:00-20:00 *Registration of participants*

19:00 *Supper Buffet*

20:00 *Cocktail*

Monday 15.09.2008

9:00 – 9:15 *Opening addresses*

9:15 – 9:45 **Nuclear and radiation safety and security**
J. Niewodniczański

Plenary session I:

9:45 – 10:15 **It's high time to accelerate nuclear power development in Poland**
H. Trojanowska

Nuclear Energy for Poland

10:15 – 10:45 **Basics in the nuclear power development: Important questions in course of the public debate**
O. Skonieczny

Chair:

H. Trojanowska
J. Niewodniczański

10:45 – 11:15 **Development of sustainable nuclear energy in Europe**
S. Chwaszczewski

11:15 – 11:30 *Coffee Break*

11:30 – 12:00 **IAEA activities in support of capacity development and application of radioisotope products and radiation technology**
M.Haji-Saeid

Plenary session II:

Application of nuclear and ionizing radiation

12:00 – 12:30 **Nuclear and Ionizing Radiations Technologies**
A. Faucitano

Chair:

M. Haji-Saeid
A.G. Chmielewski

12:30 – 13:00 **Role of nuclear and radiation technologies in oil, gas and coal mining, distribution and power sector applications**
A.G. Chmielewski

13:00 – 14:00 *Lunch*

International Conference on Recent Developments and Applications of Nuclear Technologies
Conference Program

Monday 15.09.2008

SESSION 1

Nuclear Energy and Waste Treatment

Chair: M. Rossbach, G. Zakrzewska – Trznadel

- 14:15 – 14:35 **Nuclear fuel worldwide reserves**
A. G. Chmielewski
- 14:35 – 14:55 **Which nuclear power technologies may serve Poland the best**
J. Cemar, S. Taczanowski
- 14:55 – 15:15 **Nitride – ¹⁵N nuclear fuels for advanced Nuclear Power Reactors and Accelerator- Driven Systems**
D. Axente
- 15:15 – 15:35 **Nuclear Safety Research at the Forschungszentrum Juelich, Germany**
M. Rossbach, M. Florjan
- 15:35 – 15:55 **Liquid low and intermediate-level radioactive wastes treatment – the challenge for membrane methods**
G. Zakrzewska-Trznadel
- 15:55 – 16:15 **Neutron fields produced in heavy spallation targets by 200 MeV electron beams**
A. Polański, B. Słowiński
- 16:15 – 16:40 *Coffee break*

SESSION 2

Environment and radiation protection

Chair: N. Miljević, K. Różański

- 14:15 – 14:35 **Distribution of stable isotopes in the Sava River in Serbia**
N. Miljević, D. Golobocanin, M. Nadezdic, N. Ogrinc
- 14:35 – 14:55 **Preliminary studies on origin of variations in concentration of radium isotopes in ground waters**
N. D. Chau, M. Kopeć
- 14:55 – 15:15 **Natural radioactivity elements in Karpathian, mineral, specific waters and their chemical composition**
N. D. Chau, L. Rajchel, E. Chruściel, J. Motyka
- 15:15 – 15:35 **Investigation of Particle Size-Dependent Neutron Shielding Efficiency**
J. Kim, Y. R. Uhm, B. Ch. Lee, M.-K. Lee, Ch. K. Rhee
- 15:35 – 15:55 **Biological dosimetry the perspectives and limitations**
S. Sommer, I. Buraczewska, M. Kruszewski, A. Wójcik

International Conference on Recent Developments and Applications of Nuclear Technologies
Conference Program

Monday 15.09.2008

SESSION 3

Nuclear techniques for industry and environment I

Chair: P. Urbański, A. Karimian

SESSION 4

Food Irradiation

Chair: A.L.C.H. Villavicencio, W.A.P. Calvo

16:40 – 17:00	Optimization of Industrial Radiography Technique for Defect Detection of Oil and Gas Pipeline in Weld Regions by Image processing methods <i>A. Karimian, M. Torabian, M. Yazdchi</i>	16:40 – 17:00	A Study on optimization the sample preparation for gas chromatographic methods used in routine irradiated foodstuffs detection <i>M. Virgolici, A. Medvedovici, M.M. Manea, M. Cutrubinis, C.C. Ponta, I.V. Moise, R. Georgescu</i>
17:00 – 17:20	Corrosion detection improvement of oil and gas pipelines with industrial radiography method by using image processing <i>A. Karimian, S. Yazdani, A. Movafeghi</i>	17:00 – 17:20	Vitamin E content and sensory qualities of γ-irradiated sunflower whole grain cookies <i>M. S. Taipina, L. C. A. Lamardo, M. A. B. Rodas, N. L. del Mastro</i>
17:20 – 17:40	Metrological features of radiometric dust concentration monitors operating with wireless communication system <i>A. Jakowiuk, P. Urbański, E. Świstowski, B. Machaj, P. Pieńkos, E. Kowalska</i>	17:20 – 17:40	Evaluation of γ-radiation on volatiles in green tea <i>G.B. Fanaro, D.C. Salum, T.C.F Nunes, E. Purgatto, A.L.C.H. Villavicencio</i>
17:40 – 18:00	Measurement of thin layer thickness deposited on a substrate by PIXE method <i>P. Brisset, D. Chambellan, J. De Sanoit</i>	17:40 – 18:00	Comet Assay to verify the quality of irradiated frozen chicken giblets <i>R.C. Duarte, M.M. Arajo, G.B. Fanaro, V.Y.G.T. Panelli, A. L. C. H. Villavicencio</i>
20:00	Conference Dinner		

International Conference on Recent Developments and Applications of Nuclear Technologies
Conference Program

Tuesday 16.09.2008

SESSION 5

Nuclear techniques for industry and environment II

Chair: G. Wrochna, J. Kim

- 9:00 – 9:20 **Leakage control methods for metal underground tanks and tanks placed on hardened soil with the use of radioactive tracers**
J. Kraś, C. Nobis, S. Myczkowski
- 9:20 – 9:40 **Calibration and applications of modern track detectors CR-39/PM-355 in nuclear physics and high temperature plasma experiments**
A. Malinowska, A. Szydłowski, M. Jaskóła, A. Korman, L. Waliś, B. Sartowska
- 9:40 – 10:00 **Scintillating setup for high accessibility detection of low activity ionizing radiations.**
B. Hautefeuille
- 10:20 – 12:40 **Poster Session & Coffee**
- 12:40 – 13:10 **Poster Session Review and Summary**
- 13:10 – 13:30 **Presentation of Polish Nuclear Technology Platform**
- 13:30 – 14:30 **Lunch**
- 14:30 – 18:00 **Excursion**
- 18:00 – 19 :00 **Supper**

SESSION 6

Radiopharmaceuticals and radioisotope production

Chair: E. Iller, M.E.C.M. Rostelato

- 9:00 – 9:20 **Synthesis of Rh[16aneS4-diol]211At and Ir[16aneS4-diol]211At complexes - possibly new precursors for labelling with astatine**
M. Pruszyński, A. Bilewicz, M.R. Zalutsky
- 9:20 – 9:40 **Concept of boron neutron capture therapy facility at reactor Maria in Świerk**
K. Pytel, K. Andrzejewski, I. Owsianko, N. Golnik
- 9:40 – 10:00 **Gel metal-oxide composites as filling materials for W-188/Re-188 generator columns**
E. Iller, H. Polkowska-Motrenko, A. Deptuła, D. Wawszczak, W. Łada, M. Konior, J. Milczarek, J. Żołądek, F. Zaza
- 10:00 – 10:20 **Development and production of radioactive sources for cancer treatment in Brazil**
M.E.C.M. Rostelato, P.R. Rela, C.A. Zeituni, A.Feher, J.E. Manzoli, J.A. Moura, E.S. Moura, C.P.G. Silva

Poster Evaluation Committee :

S. Chwaszczewski, A. Faucitano, D. Axente, A. Kovács, L. da Silva, Z.P. Zagórski

International Conference on Recent Developments and Applications of Nuclear Technologies
Conference Program

Wednesday 17.09.2008

SESSION 7
Industrial Application of Radiation

Chair: B.Han, P. Fuochi

- 9:00 – 9:20 **Mobile Electron Accelerator for Environmental Researches**
B. Han, S-M. Kim, W. Kang, M-J. Lee, I-H. Jung, R. A. Salimov, N. K. Kuksanov
- 9:20 – 9:40 **Unit processes and unit operations in radiation processing**
Z.P. Zagórski, W. Gluszewski
- 9:40 – 10:00 **Heating System and Gas Container for Electron Beam Irradiation of Samples under Temperatures up to 300°C**
J.E. Manzoli, A.B.C. Geraldo, E.S.R. Somesari, C. Silveira, S.R. Somesari, H.A. Paes
- 10:00 – 10:20 **Electron beam flue gas treatment process for purification of exhaust gases with high SO₂ concentration**
A.G. Chmielewski, J. Licki
- 10:20 – 10:40 **Evaluation of polymers designed for radiation processing**
G. Przybytniak, A. Nowicki, M. Walo, K. Mirkowski
- 10:40 – 11:00 **Radiation modification of the functional properties of the edible films prepared using starch and starch-lipid system**
K. Cieśla, A. Nowicki, M. Buczkowski
- 11:00 – 11:20 **Development of an Irradiation System for a Small Size Continuous Run Multipurpose Gamma Irradiator**
W.A. Parejo Calvo, P.R. Rela, C.M. Napolitano, Y. Kodama, N.M. Omi, F.E. da Costa, L.G. de Andrade e Silva
- 12:00 -12:30 **Closing Ceremony**
- 12:30- 13:30 **Lunch**
- 13:30 **Departure to Warsaw**

SESSION 8
Nuclear Medicine and Therapy

Chair: E. Dziuk, M. Lankosz

- 9:00 – 9:30 **PET-CT imaging in clinical hematology**
M. Dziuk
- 9:30 – 9:50 **Supported Software for SPECT Images Analysis and Myocardial Perfusion Diagnosis**
Z. Stegowski, J. Dudala, K. Matusiak, A. Różańska, A. Stepień
- 9:50 – 10:10 **Radioisotope somatostatin analogues in diagnosis and treatment tumours with overexpression of somatostatin receptors**
N. Szalus, G. Kaminski, K. Obuchowski, Z. Podgajny, E. Dziuk
- 10:10 – 10:30 **Neurodegenerative Disorders Recognition Using X-Ray Fluorescence Microscopy and Artificial Neural Networks Methods**
Z. Stegowski, J. Chwiej, M. Lankosz, M. Szczerbowska-Boruchowska, D. Adamek
- 10:30 – 10:50 **New challenges on tumor nuclear imaging targeting integrin $\alpha v \beta 3$**
M. Bilski, I.P. Grudzinski, U. Karczmarczyk, M. Maurin, R. Zdanowski, J. Pietrzykowski, R. Mikolajczak, E. Dziuk, M.P. Dabrowski, M.K. Janiak.
- 10:50 – 11:10 **Electronics X-ray Sources for Brachytherapy**
M. Stapa, M. Traczyk, M. Talejko
- 11:10 – 11:30 **Mechanical properties of human bone-tendon-bone grafts and human pins and screws grafts preserved by different methods and radiation-sterilised. Used for ligament reconstruction**
A. Kamiński, G. Gut, I. Uhrynowska-Tyszkiewicz