

**PUBLICATIONS, CONFERENCES,
SEMINARS, WORKSHOPS,
RESEARCH PROJECTS, EDUCATION**

PUBLICATIONS

ARTICLES

1. Abd El-Ghany El Abd, **Czachor A., Milczarek J.J.**, Pogorzelski J.: *Neutron radiography studies of water migration in construction porous materials*. IEEE Trans. Nucl. Sci. **52**, 299 (2005).
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EXPERT REPORTS

Experts from Radiation Protection Measurements Laboratory participated in the work of Normalisation Commission No 246 for Radiological Protection, (Polish Committee for Normalisation). The remarks and opinions were written about:

1. ISO 7503-2 "Evaluation of surface contamination – Part 2: Tritium surface contamination" (remarks)
2. ISO CD 12789-2 „Reference neutron radiation. Part 2: Calibration fundamentals related to the basic quantities characterizing simulated workplace neutron fields” – (voting)
3. ISO 12789:2000 "Reference neutron radiations – Characteristics and methods of production of simulated workplace neutron fields" (critical revue)
4. ISO 8529-2:2000 "Reference neutron radiations – Part 2: Calibration fundamentals of radiation protection devices related to the basic quantities characterizing the radiation field" (critical revue)
5. ISO/DIS 6980-3 „Reference beta particle radiations. Part 3: Calibration of area and personal dosimeters and determination of their response as a function of beta radiation energy and angle of incidence" (remarks)
6. PrPN-ISO 4037-4 „X and gamma reference radiation for calibrating dosimeters and dose rate meters and for determining their response as a function of photon energy – Part 4: Calibration of area and personal dosimeters in low energy X reference radiation fields" (verification of translation, **K. Józefowicz, M. Zielczyński**)

IAEA expert mission No: C3-SAU-8.010-01-01 to the King Abdulaziz City for Science and Technology, Atomic Energy Research Institute, Riyadh 11442, Saudi Arabia. Dates of assignment: 17-28 September 2005. Mission title: Selected oil-fired boiler emission inventory - **J. Licki**.

Technical Committee No 280 for Air Quality of Polish Committee for Standardization – **J. Licki**

PH.D. THESIS

M.Sc. T. Wilczyńska-Kitowska: *The Thermoresistance Properties of Manganin Implanted by Heavy Ions*. Scientific Supervisor: Ph.D., D.Sc. K. Wieteska, public defense, September 19, 2005.

CONFERENCES, SEMINARS AND WORKSHOPS ORGANIZED AND CO-ORGANIZED BY IAE

XII. SEMINAR

MATERIALS INVESTIGATION FOR POWER STATIONS AND POWER INDUSTRY

Zakopane, June, 22-24, 2005

CHAIRMAN: **E. Hajewska**

SCIENTIFIC PROGRAM COMMITTEE

E. Hajewska, IEA Świerk – chairmen

J. Pilarczyk, Institute of Welding

St. Soja, Ministry of Economy

St. Szpilowski, NAEA

K. Wieteska, IAE Świerk

ORGANIZING COMMITTEE

W. Szteke - chairman

J. Wasiak - secretary

W. Bilous, M. Przyborska, T. Wagner, J. Wojciechowska, B. Zubowski

The seminar organised by Material Research Laboratory of the Institute of Atomic Energy was the 12th seminar on the subject covering a wide range of application areas occurring during operation of power plants as well as gas transport pipelines and in the underground gas storages. The technical supervision in the light of Poland accession to the European Union and certification management systems in enterprises to compliance with the standard PN-EN ISO/IEC 17025:2001 are also discussed. The special session was destined to present some aspects connected with the materials for the nuclear power plants. There were six sessions:

- Scientific Research for Industry
- Diagnostic of the Energetic Equipments
- Materials Problem in Welding Technology
- Nuclear Energy
- Diagnostics and Standards Problem in Gas Transport and Storage
- European Standards and Systems of Safety Management.

The presented papers were published in Raport IAE-118/A.

PROGRAMME

Session I:

1. Stanisław Soja: *Actions aimed at increased innovativeness of Polish economy*
2. Marian Zeman: *COST European research projects and the necessity of modernizing of Polish conventional power industry*

Session II:

1. Bogdan Zantowicz: *Corrosion of evaporator tubes of OP-230 steam boilers*
2. Janusz Komorowski, **Witold Szteke**, Piotr Zajączkowski: *Estimation of the technical state of high-pressure pipelines*
3. Marta Wojas, Marek Walczak: *Materials for the pressure equipment*
4. **Witold Szteke, Waldemar Bilous, Jan Wasiak, Witold Baran, Ewa Hajewska, Tadeusz Wagner, Martyna Przyborska, Adam Wocial**, Piotr Zajączkowski: *The manners of the estimation of the residual-life of the installation using the crack-toughness mechanicmethode*

Session III:

1. Jerzy Brózda: *Dissimilar pipe joints made of P91 + P23 steels welded with different filler metals and their properties after long-time exposure at elevated temperatures*
2. Mirosław Łomozik: *Use of simulation technique in examinations of plastic properties of various HAZ areas of P91 steel*

Session IV:

1. **Stefan Chwaszczewski**: *The new technologies in the nuclear energy*
2. **Waldemar Bilous, Ewa Hajewska, Witold Szteke, Martyna Przyborska, Jan Wasiak, Mariusz Wiczorkowski**: *The reactor vessel steels*
3. **Andrzej Hofman, Tadeusz Wagner**: *Radiation damages on construction materials using for the vessel of reactor WWER type, after 40-years of exploitation*

Session V:

1. Maciej Witek, Krystyna Kuchta, Juliusz Oleszkiewicz, Tadeusz Teperek: *European standards applied by Gas Transmission System Operator*
2. **Mieczysław Borysiewicz, Sławomir Potemski**: *Advanced safety management systems for maintenance of pipeline integrity*
3. Krzysztof Kalinowski, Dariusz Sobkiewicz, Robert Miękus, Andrzej Dąbrowski: *The modern methods of remount works of the gas-pipelines as guaranty of gas furnishing to the customers*
4. Piotr Żoła, Sławomir Skwarczyński: *Handling the problem of the brine tubing bend on the basis of experience gained during UGS – Mogilno construction*
5. Daniel Gerwatowski: *Yamal pipeline as the example of interconnection between friction factor and system capacity*

Session VI:

1. Marek Mucha: *International Standard DIN EN ISO 14001. Comparison of the editions from 1996 and 2005*
2. Marek Zdankiewicz: *Materials for pressure equipment under the new approach directives a one-year home experience*
3. Jerzy Pasternak: *Integrated Management System as constituent of balanced development approach*

WP1 WORKSHOP MODELLING OF POLLUTANT TRANSPORT IN WATER BODIES
FOR DECISION MAKING 30-31 MAY 2005
3RD MANHAZ WP1 WORKSHOP
Centre of Excellence MANHAZ, Institute of Atomic Energy, Otwock-Świerk
CHAIRMAN: **Mieczysław Borysiewicz**

SCIENTIFIC PROGRAM COMMITTEE
M. Borysiewicz
S. Potemski

ORGANIZING COMMITTEE
M. Borysiewicz
S. Potemski
A. Wasiuk

The main objective of the first work package (WP1) is to create a common forum for developers of the advanced models for pollutant transport in atmosphere and water bodies, and users of decision support systems. The forum enables to initiate a broader discussion and interaction, both to provide essential feedback to the developers and to familiarize the users (and decision makers) with the nature and level of support they can expect in practice.

The third workshop of WP1 on “Modelling of pollutant transport in water bodies for decision making”, was held on May 30-31, 2005, at the premises of Centre of Excellence MANHAZ at the Institute of Atomic Energy, Świerk.

The Workshop consisted of presentations of position paper, technical papers and tutorials. The position paper was presented by Dr Mark Zheleznyak, Institute of Mathematical Machines, Ukraine. The presentations of technical papers were given in the format of a typical conference, with 45 – 90 minutes available for each presentation and its discussion. The tutorials were organized to provide case studies of selected scenarios. Language of the workshop was English and Polish.

The technical topics included in the workshop programme covered a wide range of issues under the general category of modelling of pollutant transport in water bodies for decision making. They were:

1. Modelling of transport of chemical and radiological pollutants in water bodies: rivers lakes, reservoirs, estuaries, systems of channels and coastal waters.
2. Application of local and regional hydrological models in decision support systems in case of emergencies caused by chemical or nuclear accident.
3. International regulations concerning accidental pollution of water bodies with potential of transboundary effects.
4. Emergency planning and early warning systems for accidental pollution of inland water courses:
 - identification of sources of potential accidental pollutions of river basins;
 - development and implementation of alarm systems;
 - planning response action related with accidental pollution of inland water bodies, including oil spills;

- protection of surface water intakes;
 - determination of segments of river courses adequate for planned response action;
 - tools and methods for combating surface water accidental pollution and for remedy actions;
 - forms of cooperation with municipalities and neighbour countries in the area of accidental pollution of waters.
5. Models of estimation of consequences of polluting water bodies for human health and ecosystems.
 6. Computer aided decision support systems for selecting suitable strategies for management of aquatic systems accidentally contaminated by radionuclides or chemicals.
 7. Security of water distribution and waste water systems:
 - methodologies and tools for the security assessment of water utilities;
 - analysis of existing and emerging threats;
 - vulnerability of water utilities;
 - diagnosing and response systems to detect and contain contaminants and for crisis communications;
 - models of contaminant transport in urban systems of potable water.

The workshop materials including the position papers and links to relevant sources of information or the issues covered by the workshop is available on the MANHAZ website <http://manhaz.cyf.gov.pl>

PROGRAMME

30 May

1. *Goals, programme of activities of the CoE MANHAZ and subject area of the WPI workshop*. **Mieczysław Borysiewicz, CE-MANHAZ, Poland.**
2. *Modelling of pollutant transport in water bodies: watersheds, rivers, coastal areas*. Mark Zheleznyak, Vladimir Maderich, Cybernetics Center of National Academy of Sciences of Ukraine, (part I).
3. *Modelling of pollutant transport in water bodies: watersheds, rivers, coastal areas*. Mark Zheleznyak, Vladimir Maderich, Cybernetics Center of National Academy of Sciences of Ukraine, (part II).
4. *Modelling of pollutant transport in water bodies: watersheds, rivers, coastal areas*. Mark Zheleznyak, Vladimir Maderich, Cybernetics Center of National Academy of Sciences of Ukraine, (part III).
5. *SMOK - System for monitoring and country protection*. Andrzej Kadłubowski, Instytut Meteorologii i Gospodarki Wodnej, Warsaw
6. *Instantaneous release problems in natural rivers: experiments and alarm models*. Paweł Rowiński, Instytut Geofizyki PAN, Warsaw.

31 May

1. *Operational system for forecasting of hydrological hazards*. Andrzej Kadłubowski, Instytut Meteorologii i Gospodarki Wodnej, Warsaw.
2. *The rate of flood water spreading in the river valley substrate*. Monika Ćwiklińska, Piotr Kuźniar, Wydział Inżynierii Środowiska, Instytut Zaopatrzenia w Wodę i Budownictwa Wodnego, Politechnika Warszawska.
3. *Modelling of the contaminant transport in the Włocławek Reservoir*. **Sławomir Potempski, CE MANHAZ.**
4. *Simple models for calculations of pollutants concentration in water bodies*. **Anna Burgs, Ilona Garanty, CE MANHAZ**
5. *Modflow - pollutant transport model in soils*. **Andrzej Furtek, CE MANHAZ**

WP1, WP2, WP3 WORKSHOP UNDERTAKING DECISIONS RELATED TO ACTIVITIES USING
DANGEROUS SUBSTANCES

1ST MANHAZ WP1, WP2, WP3 JOINT WORKSHOP, 21-22 NOVEMBER 2005

Centre of Excellence MANHAZ, Institute of Atomic Energy, Otwock-Świerk

CHAIRMAN: **Slawomir Potemski**

SCIENTIFIC PROGRAM COMMITTEE

S. Potemski

ORGANIZING COMMITTEE

S. Potemski

The joint workshop of WP1, WP2 and WP3 packages on “Undertaking decisions related to activities using dangerous substances”, was held on November 21-22, 2005, at the premises of Centre of Excellence MANHAZ at the Institute of Atomic Energy.

Workshop was organized in form of exercise in which a decision problem connected with the storing and the transportation of liquid gas will be solved.

The aim of the workshop, embracing work packages WP1, WP2 and WP3, was the modelling of the decision making process connected with the economic activity with the use of dangerous substances. The participants of workshops faced the decision making problem concerning of the possibility of undertaking the activity related to storing and the transportation of liquid gas (LPG) in defined environmental conditions. For any possible options:

- there were passed risk analysis connected with a possibility of the management of such economic activity,
- estimated was both costs of the leadership of the activity and possible profits to reach.

Participants during discussion in the form of “brain storm” had to qualify their own priorities, to consider all „pro” and „against” and to select – according to their opinion - the best common choice. The methodology „Value Tree Analysis”, put-upon to executing by participants of the optimal choice in the process of decision making, was shortly presented.

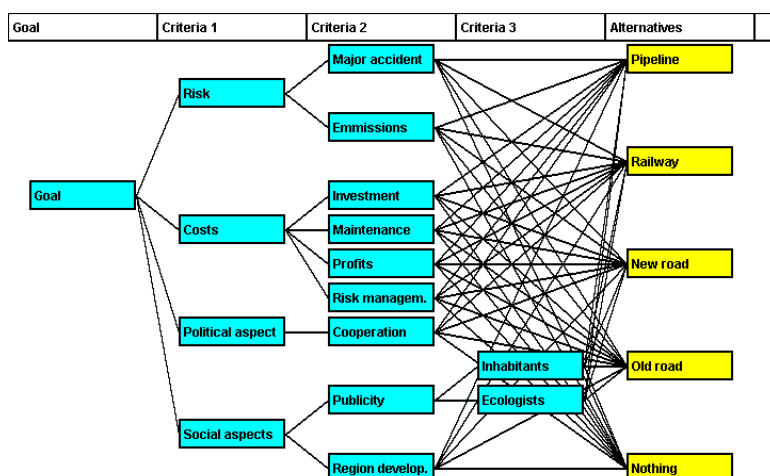
The methodology assisted participants in:

- the qualification how and on what bases the choice is executed,
- comparing of the proposed options basing on defined earlier premises,
- final selection.

The participants had to resolve decision diagram depicted below. The diagram (below) in the form of the tree shows interrelations between all relevant elements in the decision process. In general there were four possibilities:

- variant 1: construction of the pipeline (40 km) – total cost estimated for 30 mln €
- variant 2: building of special railroad (40 km) – total cost estimated for 20 mln €
- variant 3: building of road (40 km) – total cost estimated for 10 mln €
- variant 4: road transport using the existing road- structure (via Starą Wieś, distance 60 km).

Finally the pipeline has been decided to be the best solution



THEMATIC SUMMER SCHOOL: MANAGEMENT OF HEALTH AND ENVIRONMENTAL HAZARDS,
26-30 SEPTEMBER 2005

THE ORGANIZATION OF THE THEMATIC SUMMER SCHOOL: MANAGEMENT OF HEALTH
AND ENVIRONMENTAL HAZARDS

Centre of Excellence MANHAZ, Institute of Atomic Energy, Otwock

CHAIRMAN: Mieczysław Borysiewicz

SCIENTIFIC PROGRAM COMMITTEE

M. Borysiewicz,

S. Potemski,

L. Łobocki (Warsaw Technical University)

ORGANIZING COMMITTEE

M. Borysiewicz

S. Potemski

A. Wasiuk

W. Sander (Warsaw Technical University)

The Centre of Excellence MANHAZ along with the Faculty of the Engineering of the Environment of the Warsaw Technical University on 26-30.09.2005 organized the thematic school: "Management of Health and Environmental Hazards".

Lectures and laboratories in the framework of school, addressed to the wide circle interested, took place at the Faculty of the Engineering of the Environment of the Warsaw Technical University.

The objectives of the School were presentation of the following thematic problems:

- Environmental risk estimation and management.
- Technical risk management.
- Quantitative and qualitative estimating of the risk for stationary industrial installations.
- Level of protection analysis – LOPA .
- The modelling of the transportation of pollutants in the atmosphere, the water environment and soil on needs of the decision support systems and the crisis situation management.
- Decision and management support systems for crisis situation, systems for managing of safety and the susceptibility analyzes.
- Models and tools for estimating and managing the risk generated by the transportation of dangerous goods with roads and railway tracks.
- Models and tools for estimating the risk generated by the transportation of dangerous substances with pipelines.
- The approach to complex estimating of the risk from fuel cycles with the production of the electrical energy.
- The estimation of the risk and the qualitative management with the risk in uses of ionizing radiation in medicine.

The school became organized in the form of lectures driven by specialists from the given sphere and practical exercises in computer laboratories of the Faculty of the Engineering of the Environment. On needs of exercises suitable computational programs or calculation sheets, illustrating talked over problems were prepared by the CD MANHAZ specialists.

Lectures within the framework of Schools were delivered by specialists from following institutions:

1. Institute of Atomic Energy, Centre of Excellence MANHAZ, Otwock,
2. Warsaw Technical University,
 - Faculty of the Engineering of the Environment
 - Faculty of Mechatronics
3. Institute of Meteorology and Water Management
4. Institute of Plasma Physics and Laser Micro Synthesis
5. Institute of Geophysics, Polish Academy of Science

Laboratories were conducted by specialists from CE MANHAZ.

PROGRAMME

Day 1

The solemn opening of the School was made by the prof. Z. Kledynski, the Dean of the Faculty of the Engineering of the Environment of the Warsaw Technical University.

The Director of the CoE MANHAZ sketched main directions the Centre acts, introduced directions of research works, scientific aims and the matter in the area of interests of CE MANHAZ. Introduced the manner of the organization of the Centre, and most important research works and implementation, computer systems worked out and implemented in CE MANHAZ and also sketched the range of searchingly - application works provided for to the realization.

The morning- session of the School filled lectures:

- Introduction into modeling of transport and pollutant transformation (M. Markiewicz)
- Modelling of chemical and photochemical transformations in atmosphere (J. Strużewska)
- Integrated modelling system MIMS coupled with air quality model CMAQ (**H. Wojciechowicz**)

The afternoon session embraced following lectures:

- Methods of risk assessment for stationary installations, Seveso II directive and its consequences, safety reports (**M. Borysiewicz**)
- Risk acceptance criteria (**M. Borysiewicz**)

The first day of the School closed the discussion of participants on themes moved in the morning- and afternoon sessions.

Day 2

The 1st morning- session of the School filled lectures:

- Application of meteorological models for estimations and prognosis of air quality I (L. Łobocki)
- Meteorology of transport and pollutant transformation (L. Łobocki)

The 2nd morning- session embraced following lectures:

- Application of meteorological models for estimations and prognosis of air quality II (L. Łobocki)
- Guidelines for atmospheric dispersion modelling for crisis management systems (**M. Borysiewicz**)
- Modelling of heavy gases dispersions (M. Markiewicz)

In the afternoon session following practical exercises (laboratories) were conducted:

- INDOR – method of hazardous identifications in industrial areas (**S. Potemski**)
- Example of risk analysis: chlorine installation (**S. Potemski**)

The exercises were conducted and supervised by specialists from the CoE MANHAZ. Participants of exercises executed independent analyses (calculations), basing on theory presented prior to the exercises, using previously prepared software tools (computational programs, databases, calculation sheets).

Day 3

The 1st morning session filled lectures:

- Numerical weather prediction in Poland – element of system SMOKE (A. Mazur)
- Usage of radars for diagnosis and ultra-short time prognosis of meteorological parameters (Z. Dziewit)

The 2nd morning session embraced following lectures:

- System of hydrological prognoses in Poland – element of system SMOKE (A. Kadłubowski)
- Modelling of pollutant transport in rivers – Narew river (P. Rowiński)
- Modelling of pollutant transport in water bodies - model Threetox (**S. Potemski**)
- Gathering of current meteorological data (M. Ostrowski)

In afternoon hours the reception for lecturers, guests and participants of the School was organized. The reception had form of “garden party”.

The less formal atmosphere allowed free-for-all discussion, the proposal of new themes, the exchange of contacts, making of new acquaintances.

Day 4

The 1st morning- session of the School filled lectures:

- European decision support system for nuclear emergency RODOS (**S. Potemski**)
- Unified Dispersion Model UDM (A. Gałkowski)

The 2nd morning- session of the School filled lectures:

- Safety management systems for handling major accidents for stationary installations and pipelines (**M. Borysiewicz**)
- Security Vulnerability Analyses for stationary installations and pipelines (**M. Borysiewicz**)
- General framework for chemical transportation risk assessment and management (**A. Furtek**)

The afternoon session filled the lecture:

- Risk assessment and quality management in medical application of ionizing radiation (**N. Golnik**)

Parallel with the lecture in the afternoon session practical exercises (laboratories) on following problems took place:

- Indexing method for pipelines hazard assessment , API methodology (S. Potemski)
- Case studies for assessment of risk from railway and road transporting of hazardous substances (**S. Potemski**)

The exercises were conducted and supervised by specialists from the CoE MANHAZ. Participants of exercises executed independent analyses (calculations), basing on theory presented prior to the exercises, using previously prepared software tools (computational programs , databases, calculation sheets).

Participants of the School, according from professional interests , had a possibility of the choice of the subject matter.

Day 5

The morning- session of the School filled lectures:

- Modflow - pollutant transport model in soils (**S. Potemski**)
- Ensemble dispersion modeling: a step forward in decision-making support (**S. Potemski**)

Parallel with the 1st lecture in the morning session practical exercises (laboratories) on following problem took place:

- Application of Level of Protection Analyses LOPA (**A. Furtek**)

The exercises were conducted and supervised by specialists from the CoE MANHAZ. Participants of exercises executed independent analyses (calculations), basing on theory presented prior to the exercises, using previously prepared software tools (computational programs, databases, calculation sheets).

The afternoon session filled the lecture:

- Crisis management system in chemical plants SZYK (**S. Potemski**)
- Environmental risk assessment for different fuel cycles of electricity generations (**M. Borysiewicz**)

The last part of the session was recapitulation of the School made by the director of the CoE MANHAZ dr **Mieczysław Borysiewicz**, and the distribution of diplomas to participants of the School.

MATERIALS IN TRANSITION

XVII International School on Physics and Chemistry of Condensed Matter and V International Symposium on Physics in Material Science, (organized by the Institute of Experimental Physics, University of Białystok and the Institute of Atomic Energy, Świerk) Białowieża, June 21-29, 2005

Chairman Ludwik Dobrzynski
Vice-Chairman **Andrzej Czachor**
Vice-Chairman Eugeniusz Żukowski
Scientific Secretary Krystyna Perzyńska
Treasurer Dariusz Satula

IAE SEMINARS

1. Hertel N.: *High temperature helium-cooled fast reactor design*, March 21, 2005.
2. Malakhov A.I.: *The research program of Veksler and Baldn's Laboratory of High Energy (LHE) of Joint Institute for Nuclear Research in Dubna*, September 4, 2005.
3. *Research programme for nuclear reactor MARIA*, October 3, 2005, in Polish.
4. **Golnik N., Zielczyński M.**: *New ionization methods for determination of neutron dose at therapeutic medical accelerators*, December 1, 2005, in Polish.

DEPARTMENT OF NUCLEAR METHODS IN THE SOLID STATE PHYSICS SEMINARS

1. Didyk A.Yu. (JINR Dubna): *Present and future status of accelerator complex of Flerov Laboratory of Nuclear Reactions. Surface phenomena under swift heavy ion implantation*, January 13, 2005.
2. **Czachor A.**: *Liquid propagation in porous material, the essence of capillary forces, the hyper-pore mode*, February 2, 2005, in Polish.
3. **Maletka K.** (OBRI): *Properties of informational channel – methods of increasing its informational capacity*, February 12, 2005, in Polish.
4. **Paluchowska B.**: *Life-providing metals – grounds for the bio-non-organic chemistry*, March 3, 2005, in Polish.
5. **Górski L.**: *Roentgen and microscopic investigation of the structure of sprayed ceramic coatings*, March 17, 2005, in Polish.
6. **Chojnowski M.**: *Examples of porous materials application in chemical engineering*, April 28, 2005, in Polish.
7. Baczmański A. (AGH Cracow): *Stresses in polycrystals – diffraction study and modelling*, May 12, 2005, in Polish.
8. **Bednarski S.**: *Half a century of the matter crystallization*, October 27, 2005, in Polish.
9. Baczmański A. (AGH Cracow): *Neutron diffraction investigation of stresses in polycrystalline materials*, November 10, 2005, in Polish.
10. Didyk A. Yu. (JINR Dubna): *Surface structure changes of InP and GaAs single crystals irradiated with high energy electrons and swift heavy ions*, December 8, 2005.

LECTURES AND SEMINARS DELIVERED OUT OF THE IAE

1. **Potempski S., Wieteska K.**: *Experience of the Institute of Atomic Energy in participation in the international research programmes on national defence and security*, Science and industry of Poland in international frameworks and programmes for defence and security, April 5, 2005.
2. **Szczurek J.**: *Incorporation of advanced accident analysis methodology into safety analysis reports*. University of Pisa, Pisa, June 2005.
3. Bazo Z., **Szczurek J.**: *Justification of an emergency operational procedure for EMO reactor vessel head inventory cooldown under natural circulation*, VUJE, Trnava, October 18, 2005.

JINR LABORATORY OF HIGH ENERGY, DUBNA, DECEMBER, 21 2005

1. **Wojciechowski A.**, Musulmanbekov G., Uzhynski V.V., Słowiński B.: *Space-dynamic structure of intranuclear processes at medium energies and simple model of nuclear reaction*, in Russian.
2. **Słowiński B.**: *Search for mesonic intranuclear ingredients using quasi-free channels of πA interactions at several GeV/c*. A talk given at the 1 st workshop under the project of Eta-nuclei., May 26, 2005.

PAVOL JOZEF SAFARIC UNIVERSITY IN KOSICE, INSTITUTE OF PHYSICS, APRIL 24-29, 2005

1. **Szuta M.**: *The future of nuclear plants – accelerator driven systems; Experiments Energy plus Transmutation at Dubna; The accident in RBMK Chernobyl reactor*.

GESELLSCHAFT FÜR SCHWERIONENFORSCHUNG, DARMSTADT, GERMANY

1. **Słowiński B.**: *The quest for pionic interanuclear ingredients using quasi-channels of πA interactions at several GeV/c*. Plenary talk on the meeting of PANDA Collaboration, GSI, Darmstadt, March 22, 2005.
2. **Słowiński B.**: *Asymptotic behaviour of average profiles of electromagnetic cascades produced by high energy gamma quanta in dense amorphous materials*. Plenary talk on the meeting of PANDA Collaboration, GSI, Darmstadt, September 6, 2005.

MANHAZ TOPICAL SCHOOL, WARSAW UNIVERSITY OF TECHNOLOGY, SEPTEMBER 2005, (in Polish)

1. **Borysiewicz M., Garanty I., Kozubal A.**: *Environmental risk assessment for different fuel cycles in electricity generation*
2. **Borysiewicz M., Garanty I., Kozubal A., Furtek A.**: *General framework for chemical transportation risk assesment and management*
3. **Borysiewicz M., Garanty I., Kozubal A., Potemski S.**: *Security vulnerability analyses for stationary installations and pipelines*
4. **Borysiewicz M., Garanty I., Kozubal A.**: *Safety management systems for handling major accidents for stacionary installations and pipelines*
5. **Borysiewicz M., Garanty I., Kozubal A.**: *Guidelines for atmospheric dispersion modeling for crisis management systems*
6. **Borysiewicz M., Furtek A.**: *Methods of risk assessment for stationary installations, Seveso II directive and its consequences*
7. **Borysiewicz M.**: *Basic elements of industrial installations safety*
8. **Borysiewicz M.**: *Basic elements of safety analyses*
9. **Borysiewicz M.**: *New theory of system accidents*
10. **Borysiewicz M .**: *Risk acceptance criteria*
11. **Potemski S.**: *European decision support system for nuclear emergency RODOS*
12. **Potemski S.**: *Modeling of pollutant transport in water bodies – model Threetox*
13. **Potemski S.**: *Modflow – pollutant transport model in soils*
14. **Potemski S.**: *Crisis management system in chemical plants SZYK*
15. **Furtek A.**: *Indexing method for pipelines hazard assessment, API methodology*

16. **Furtek A.:** *Case studies for assessment of risk form railway and road transporting of hazardous substances*
17. **Golnik N.:** *Risk assessment and quality management in medical application of ionizing radiation*
18. **Potemski S.:** *Ensemble dispersion modelling: a step forward in decision-making support*

POLISH AND INTERNATIONAL RESEARCH PROJECTS

Manufacturing of the Compound $Dy(Mn_{0.4-x}Al_xFe_{0.6})_2$, Investigation Its Structure, Electric and Mössbauer Properties. J.Pszczola, Academy of Mining, Cracow, in cooperation with **J. Suwalski**, 2002 – 2005

SPUB-M No 624/E-80/SPB/DESY?T-11/DWM 134/2004-2006, *Strain Fields and Structural Defects in Components of Modern Semiconductor lasers*, **K. Wieteska**

Project No 3 T10C 022 29, *Investigation of Defect Structure, Lattice Deformation and Polytypic Structure in Single Crystals and Implanted Layers of Silicon Carbide*, W. Wierzchowski, Institute of Electronic Materials Technology, in cooperation with **K. Wieteska**

Centre of Excellence MANHAZ, *Management of Health and Environmental Hazards*, Contract EVG1-CT-2002-80001 MANHAZ, 2002-2005, **M. Borysiewicz**

European approach to nuclear and radiological emergency management, EURATOM acronym: EURANOS, Contract: FI6R-CT-2004-508843, 2005-2008, **M. Borysiewicz**

European Union PHARE Programme, Sector: Environment *Creation of a Central System of Radiological Monitoring and Radiation Safety of the Świerk Nuclear Centre* No PL 2002/632.07.01, 2004 – 2005. Coordinator **B. Filipiak**

Nuclear safety PHARE projects for MARIA research reactor:

2002/000-632.07.02 *Reduction of occupational exposure and radioactive waste arising from the operation of the MARIA research reactor through actions taken at the source*

G. Krzysztozek, A. Moldysz, K. Pytel, A. Gołąb, A. Bąk

2003/5812.05.01 *Upgrading of the heat exchangers and ion-exchangers at the MARIA research reactor to reduce the possible radioactive release into the environment*

G. Krzysztozek, A. Moldysz, A. Gołąb, J. Piąstka

Technical assistance of the IAEA and DOE-US (GTRI): *Conversion of the MARIA research reactor to LEU*
G. Krzysztozek

Repatriation and Disposition of Fresh and/or Spent Nuclear Fuel from Research Reactors (RER/4/028).

G. Krzysztozek, A. Gołąb

Aimed IAEA project Nr 6T112004C/06313: *MARIA reactor installation for silicon neutron transmutation doping*
J. Jaroszewicz, L. Dąbkowski, K. Pytel, G. Krzysztozek

International experiment "Energy plus Transmutation" on Research of Physical aspects of electronuclear method of energy production and transmutation of radioactive wastes of nuclear energetics in high energy beam of particles from synchrophasotron or nuclotron accelerator in JLN, Dubna, Prof. A.I. Malachov, Dr M.I. Krivopustov, in cooperation with **M. Szuta, E. Strugalska-Gola, S. Kilim, A. Wojciechowski, M. Bielewicz**

Project of collaboration on ion implantation with JINR Dubna, Contract 07-5-1013-2001-2008, **R. Wiśniewski**

Project: Coordinated Research Project on *Analytical and Experimental Benchmark Analyses of Accelerator Driven System (ADS)*

IAEA Research Agreement No 13396 – 2005 - 2010

M. Szuta, Z. Woźnicki, E. Strugalska-Gola, S. Kilim, A. Wojciechowski, A. Polański

Corrosion of Research Reactor Aluminium Clad Spent Fuel in Water. International Atomic Energy Agency Coordinated Research Programme. Project 624/E-80/SPB/IAEA/T-08/DWM-8/2004-2006, Chief Scientific Investigator in Poland: **S. Chwaszczewski**

Identification of changes of sulphur isotopic ratio in the transition products of coal combustion process and desulphurization of flue gases. KBN-3T09C-03827, 2004-2006, IICNT, **J. Licki**, supervisor: A.G. Chmielewski

Integrate IAEA Methodology into SPIRS Program. Contract no: 19611-2002-05 F1 SEI ISP P, **M. Borysiewicz**, 2002 –2005

European Approach to Nuclear and Radiological Emergency Management EURANOS, integrated project, 2004 – 2007, **M. Borysiewicz**

Electron Beam for Processing of Flue Gases, Emitted in Metallurgical Processes, for Volatile Organic Compounds Removal. European Commission Research Project EBOGEM Project. ICA-2-CT-2000-10005,. Programme coordinated by the INCT, **J. Licki**, supervisor: A.G. Chmielewski

Saudi Arabia, King Abdulaziz City for Science and Technology (KACST), Atomic Energy Research Institute, Riyadh 11442, Saudi Arabia
Project manager: Ahmed Basfar

Laboratory scale experimental analysis of electron beam treatment of flue gases from combustion of liquid petroleum oils conducted on INCT laboratory plant, **J. Licki**, supervisor: A. G. Chmielewski (INCT)

Strain Fields and Structural Defects in Components of Modern Semiconductor Lasers – project II-03-022 EC at DESY-HASYLAB (2004 – 2006): **K. Wieteska**

CONRAD (*COordinated Network for RAdiation Dosimetry*), FP6-12684 (2005-2007), Delft University, Netherlands, Work Package 6 *Complex mixed radiation fields at workplaces*, Contract FP6-12684 (2005-2007): **N. Golnik**

SPECIAL PROGRAMMES AND RESEARCH DEVICES

The Financial Support for the Hot of the Material Research Laboratory of IAE.

Head of project: **W. Szteke**

Project no: 624/E-80/SPUB/T-10/022/2005

JOINT SCIENTIFIC AND TECHNOLOGY PROJECTS SCIENTIFIC AND TECHNOLOGICAL COOPERATION JOINT PROJECTS

GÖTTINGEN UNIVERSITY

Manufacturing and Export of 120 Oriented Cu Single Crystals with Enlarged Mosaic Spread (20') for the Construction of the Focusing Neutron Monochromator

S. Bednarski

JOINT INSTITUTE OF NUCLEAR RESEARCH, DUBNA, LABORATORY OF NEUTRON PHYSICS

Studies of the Sugar Nonionic Gemini Surfactants

SANS Study of the Nonionic Classic Surfactant C₁₄E₇ in D₂O Solutions

A. Rajewska

JOINT INSTITUTE OF NUCLEAR RESEARCH, DUBNA, LABORATORY OF HIGH ENERGY,

Prof. A. I. Malakhov

Study of Transmutation of Radioactive Waste of Nuclear Energy Arrangements

B. Słowiński

BAUMAN STATE TECHNICAL UNIVERSITY, MOSCOW, B.E. Vintaikin

Investigation of Atomic and Magnetic Microdynamics, Structural Singularities Close to Martensitic Phase Transitions and Kinetics of the Phase Decompositions affecting the Physico-Mechanical Features of 3d Metal Alloys

K. Mikke, J. Jankowska-Kisielińska, J.J. Milczarek

ROSTOV STATE UNIVERSITY, ROSTOV-ON-DON, Prof. L. A. Krukier

Iterative methods

Z.I. Woźnicki

INSTITUTE OF NUMERICAL METHODS AT RUSSIAN ACADEMY OF SCIENCES, MOSCOW,
prof. V. Lebedev, prof. Y. Neczepurenko

Reactor Physics Numerical Methods,

Z.I. Woźnicki

NUCLEAR PHYSICS INSTITUTE OF THE ACADEMY OF SCIENCES, PRAHA, Prof. R. Mach

Nuclear Reactions of Intermediate Energy in Extended Heavy Targets

B. Słowiński

NUCLEAR RESEARCH CENTER, CAIRO, Prof. M.N.H. Comsan

Radiation Materials Investigation Using Beams of Heavy Ions, Neutrons and Gamma Rays

B. Słowiński

FREE UNIVERSITY OF BRUSSELS, Prof. R. Beauwens

Computational Aspects of MYRRHA Project, 2002 – 2003

J. R. Mika, Z. I. Woźnicki, M. Szuta

CERN EUROPEAN CENTRE FOR NUCLEAR RESEARCH, RADIATION PROTECTION GROUP, CERN
(TIS -RP), Dr T. Otto

Comparison of Dosimetric Instruments for Determination of $H^(10)$ in High-Energy Mixed Radiation Fields*

N. Golnik, M. Zielczyński

LABORATOIRE LÉON BRILLOUIN, , HFR ORPHEE, CEN, Saclay, Dr B. Hennion

Inelastic Magnetic Neutron Scattering at the Magnetic Brillouin Zone Boundary in the Mn (20%Fe) Alloy;

Anisotropy of Spin Wave Dispersion in the FCC Mn(37%Fe) Alloy

K. Mikke, J. Jankowska-Kisielińska

INTERNATIONAL ATOMIC ENERGY AGENCY, J. Misak

Incorporation of Advanced Accident Analyses Methodology into Safety Analysis, Report of NPPs

J. Szczurek

VUJE, Trnava, a.s.

Safety Analysis of VVER-440/213 Reactors with RELAP Code

J. Szczurek

KFKI ATOMIC ENERGY RESEARCH INSTITUTE, Dr Marton Balaskó

A. Czachor, J.J. Milczarek

EDUCATION

IAE provides access to nuclear facilities for educational purposes. In 2005 over 3850 people visited Institute of Nuclear Energy in order to obtain information on atomic energy, nuclear techniques and their applications in industry, agriculture, health and environment protection. The visitors represented universities, engineering colleges, secondary schools and various scientific and technical organizations. The main topic of interest was MARIA research reactor and their nuclear equipments and facilities. Another point of interest was Material Research Laboratory and its research activity for power industry. Each visit comprised the lecture on the principles of the nuclear reactor operation and the application of the neutron radiation. In total 130 lectures on the nuclear reactor have been delivered for visitors. Similar 82 lectures on the materials testing techniques have been delivered at the Material Research Laboratory of the IAE.

TRAINING OF STUDENTS

The 4 weeks training of university students was performed during summer months. Six students of the Faculty of Physics of Warsaw University of Technology were trained in nuclear reactor technology at the MARIA reactor. One student of AGH University of Science and Technology, Cracow, obtained the training in Mössbauer effect studies of magnetic alloys. One student of the Electrical and Computer Engineering of Rzeszów University of Technology was trained in hazards risk assessment at MANHAZ Excellence Centre of the IAE. One student of chemistry of University of Podlasie was trained in health physics at Radiation Protection Measurements Laboratory. One student of the Faculty of Management and Marketing of Białystok Technical University obtained the training in management procedures of IAE.

LONG TERM VISITS OF IAE STAFF MEMBERS TO FOREIGN COUNTRIES

T. Kochański	Joint Institute for Nuclear Research, Dubna, Russia	Contract: February 1995 – July 2006
A. Rajewska	Joint Institute for Nuclear Research, Dubna, Russia	Contract February 1995 - December 2005
A. Hofman	Joint Institute for Nuclear Research, Dubna, Russia	Contract: July 1995 – December 2006

VISITORS TO IAE

1. Krivopustov M. L. – JINR, Dubna, Russia
2. Malakhov A. I.- JINR, Dubna, Russia

STANDARDISATION

Standardisation Commission for Nuclear Instrumentation, Area No 266

Development of Polish Standards:

PN-EN 60601-2-1:2005: Medical electrical equipment. Part 2-1: Particular requirements for the safety of electron accelerators in the range of 1 MeV to 50 MeV;

prPN-EN 60601-2-11: Medical electrical equipment - Part 2: Particular requirements for the safety of gamma beam therapy equipment;

prPN-EN 60601-2-11:2002/A1: Medical electrical equipment - Part 2-11: Particular requirements for the safety of gamma beam therapy equipment;

prPN-EN 60601-2-17: Medical electrical equipment - Part 2-17: Particular requirements for the safety of automatically- controlled brachytherapy afterloading equipment;

prPN-EN 60601-2-9: Medical electrical equipment - Part 2: Particular requirements for the safety of patient contact dosimeters used in radiotherapy with electrically connected radiation detectors;

Standardisation Commission for Interfaces and Buildings Electronic Systems, Area No 173

prPN-EN 12098-3:2005: Controls for heating systems. Part 3: Outside temperature compensated control equipment for electrical heating systems;

prPN-EN 50065-2-1:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments;

prPN-EN 50065-2-2:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 2-2: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in industrial environments;

PN-EN 50065-2-3:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors;

PN-EN 50065-4-3:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 4-3: Low voltage decoupling filter. Incoming filter

PN-EN 50090-3-2:2005: Home and Building Electronic Systems (HBES). Part 3-2: Aspects of application. User process for HBES Class 1;

PN-EN 50090-4-1:2005 (U): Home and Building Electronic Systems (HBES). Part 4-1: Media independent layers. Application layer for HBES Class 1;

PN-EN 50090-5-2:2005: Home and Building Electronic Systems (HBES). Part 5-2: Media and media dependent layers. Network based on HBES Class 1, Twisted Pair;

PN-EN 50090-9-1:2005 (U): Home and Building Electronic Systems (HBES). Part 9-1: Installation requirements. Generic cabling for HBES Class 1 Twisted Pair;

PN-EN 50065-4-4:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 4-4: Low voltage decoupling filters. Impedance filter;

PN-EN 50065-4-5:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 4-5: Low voltage decoupling filter. Segmentation filter;

PN-EN 50065-4-6:2005: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 4-6: Low voltage decoupling filters. Phase coupler;

PN-EN 50065-4-6:2005 (U): Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz. Part 4-6: Low voltage decoupling filters. Phase coupler EN 50065-4-6:2004;

PN-EN 50174-3:2005: Information technology. Cabling installation. Part 3: Installation planning and practices outside buildings;

PN-EN ISO 16484-2:2005: Building automation and control systems (BACS). Part 2: Hardware;

prPN-EN 12098-4: 2005: Controls for heating systems - Part 4: Optimum start-stop control equipment for electrical systems EN 12098-4:2005;

prPN-EN 12098-5:2005: Controls for heating systems - Part 5: Start-stop schedulers for heating systems EN 12098-5:2005;

prPN-EN 50065-2-1:2005/prA1: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments;

prPN-EN 50065-2-2:2005/prA1: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-2: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in industrial environments PN-EN 50065-2-2:2005;

prPN-EN 50065-2-3:2005/prA1: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors PN-EN 50065-2-3:2005;

prPN-EN 50065-4-7: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz and from 1,6 MHz to 30 MHz - Part 4-7: Portable low voltage decoupling filters - Safety requirements EN 50065-4-7:2005;

prPN-EN 50090-2-3: Home and Building Electronic Systems (HBES) - Part 2-3: System overview - General functional safety requirements for products intended to be integrated in HBES EN 50090-2-3:2005;

- prPN-EN 50090-4-1:** Home and Building Electronic Systems (HBES) - Part 4-1: Media independent layers - Application layer for HBES Class 1 EN 50090-4-1:2004;
- prPN-EN 50090-4-2:** Home and Building Electronic Systems (HBES) - Part 4-2: Media independent layers - Transport layer, network layer and general parts of data link layer for HBES Class 1 EN 50090-4-2:2004;
- prPN-EN 50090-5-1 :** Home and Building Electronic Systems(HBES) - Part 5-1: Media and media dependent layers - Power line for HBES Class 1 EN 50090-5-1:2005;
- prPN-EN 50090-7-1:** Home and Building Electronic Systems (HBES) - Part 7-1: System management - Management procedures EN 50090-7-1:2004;
- prPN-EN 50090-9-1:** Home and Building Electronic Systems (HBES) - Part 9-1: Installation requirements - Generic cabling for HBES Class 1 Twisted Pair EN 50090-9-1:2004;
- prPN-EN 61690-1:** Electronic Design Interchange Format (EDIF) - Part 1: Version 300 (IEC 61690-1:2000) EN 61690-1:2000;
- prPN-EN ISO 16484-3:** Building automation and control systems (BACS) - Part 3: Functions (ISO 16484-3:2005) EN ISO 16484-3:2005;
- prPN-prEN 13321-1:** Open data communication in building automation, controls and building management - Home and building electronic system - Part 1: Product and system requirements EN 13321-1:2006;
- prPN-prEN13321-2:** Open Data Communication in Building Automation, Controls and Building Management - Home and Building Electronic Systems - Part 2: KN Xnet/IP Communication prEN13321-2;
- prPN-prEN 14908-1:** Open Data Communication in Building Automation, Controls and Building Management - Building Network Protocol - Part 1: Protocol Stack EN 14908-1:2005;
- prPN-prEN 14908-2:** Open Data Communication in Building Automation, Controls and Building Management - Control Network Protocol - Part 2: Twisted Pair Communication EN 14908-2:2005;
- prPN-prEN 14908-3:** Open Data Communication in Building Automation, Controls and Building Management - Control Network Protocol - Part 3: Power Line Channel Specification prEN 14908-3;
- prPN-prEN 14908-4:** Open Data Communication in Building Automation, Controls and Building Management - Control Network Protocol - Part 4: IP Communication prEN 14908-4;
- prPN-prEN 15232:** Calculation methods for energy efficiency improvements by the application of integrated building automation systems prEN 15232;
- prPN-prEN 50310:** Application of equipotential bonding and earthing in building in information technology equipment prEN 50310;
- prPN-prEN 50412-2-1:** Immunity requirements for power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz- Part: Residential, commercial and industrial environment EN 50412-2-1:2006;
- prPN-prEN ISO 16484-6:** Building automation and control systems - Part 6: Data communication - Conformance testing (ISO/DIS16484-6:2004) EN ISO 16484-6:2005;

PARTICIPATION IN SCIENTIFIC COUNCILS, COMMITTEES
AND SCIENTIFIC SOCIETIES

POLISH ACADEMY OF SCIENCES COMMITTEES

Committee of Medical Physics, Radiobiology and X-ray Imaging of Division VI of the PAS

N. Golnik

Committee on Energy to the Presidium of the PAS

S. Chwaszczewski

INTERNATIONAL ORGANISATIONS, ASSOCIATIONS AND SOCIETIES

International Organization of Medical Physics

N. Golnik

International Radiation Protection Association

N. Golnik, B. Filipiak, K. Józefowicz, M. Zielczyński

World Association of Nuclear Operators, Moscow Centre Governing Board

S. Chwaszczewski (Member)

International Organisation for Standardization. Working Group WG-19, WG-21, WG-2

N. Golnik, K. Józefowicz, M. Zielczyński

World Energy Committee: European Regional Study Working Group on The Future of Nuclear in Europe

S. Chwaszczewski

International Society of Neutron Capture Therapy, International Society for Cf-252 Brachytherapy

N. Golnik

Joint Institute for Nuclear Research, Dubna, Laboratory of High Energies

B. Słowiński (referee for scientific publications)

Joint Institute for Nuclear Research, Dubna, Department of Relativistic Nuclear Physics, Laboratory of High Energies

B. Słowiński (Member of Scientific Council)

International Scientific Collaboration PANDA, GSI, Darmstadt

B. Słowiński (Member)

Journal of Nuclear and Radiation Physics, Cairo, Egypt

B. Słowiński (international scientific advisor)

American Association for the Advancement of Sciences

M. Szuta

Society for Industrial and Applied Mathematics (SIAM)

Z.I. Woźnicki

International Linear Algebra Society (ILAS)

Z.I. Woźnicki

Gesellschaft für Angewandte Mathematik und Mechanik (GMM)

Z.I. Woźnicki

World Scientific and Engineering Society

Z.I. Woźnicki

European Academy of Sciences, Brussels

Z.I. Woźnicki (Member)

Journal Nuclear Engineering and Design

A. Strupczewski (permanent Board Member)

Institute of Nuclear Materials Management

J. Koziel (Member)

Journal of Powder Diffraction

L. Górski (corresponding member of the Editorial Staff)

POLISH ORGANISATIONS, ASSOCIATIONS AND SOCIETIES

Polish Society of Medical Physics

N. Golnik (Member of Executive Board, President of the Radiation Protection Section affiliated to International Radiation Protection Association as the National Society), **B. Filipiak, K. Józefowicz, M. Zielczyński**

Council for Atomic Energy Matters, National Atomic Energy Agency

G. Krzysztozek

Commission on Nuclear Safety and Radiological Protection

N. Golnik

Commission on Nuclear Methods in Condensed Phase Physics

K. Wieteska, A. Czachor, J. J. Milczarek

Commission on Nuclear Power

S. Chwaszczewski

Polish Nuclear Society

S. Chwaszczewski (President)

Polish Society of Radiation Research

N. Golnik, M. Zielczyński

Polish Physical Society

A. Czachor, K. Mikke

Polish Neutron Scattering Society

A. Czachor, J. Jankowska-Kisielińska, K. Mikke, J.J. Milczarek

Polish Committee for Standardization,

J. Licki (Member of Problem's Commission no 280 – Air Quality)

Warsaw University of Technology, Faculty of Physics

S. Słowiński (Member of Scientific Council)

Society of Electricians of Poland, Nuclear Power Section

E. Strugalska-Gola

Polish Crystal Growth Society

S. Bednarski

Polish Synchrotron Scattering Society

K. Wieteska

Scientific Council of OBRI POLATOM

K. Wieteska, L. Górski, Z. Haratym, B. Laurikajnen

Polish Solar Energy Society; Polish Photovoltaics Society

C. Pochrybniak

SCIENTIFIC, TECHNICAL AND ECONOMIC INFORMATION CENTRE E. Szlichcińska

LIBRARY *biblioteka@cyf.gov.pl*

E. Szlichcińska, M. Sc.

G. Kosicka

The library contains 17600 volumes and 966 journal volumes, 80 current journals in the fields covered by IAE research activity and serves as the national source of literature on nuclear techniques and radioactive waste management.

PUBLISHING ACTIVITY

G. Swiboda, M. Sc.

H. Gryzińska

J. Pustola

7 IAE Reports A and one IAE monograph as well as the IAE Annual Report 2004 have been published.

EDUCATION

G. Kosicka

A. Romanowski

The Information Centre provides organization and support for visitors to the IAE.

STANDARDISATION ACTIVITY

R. Trechciński, Ph. D.

S. Wójtowicz, Ph. D.

K. Kruszewski, M. Sc.

44 standardization projects were prepared by the standardisation unit of the Centre.

COMPUTER CENTRE

A. Szarek, I. Wasilewski, G. Jaworski

Computer network in the Institute of Atomic Energy is based on the star topology with individual twisted pair or fiber optic cables coming from each node and terminating at central network concentrator or hub/switch.

The total lengths the fibre-optic cable is about 3600 meters. There are about 220 connected workstations, mostly PC computers.

Network is split into 3 virtual LANs. Two of them cover both segments of thick ethernet cable. The third is a special area called demilitarized zone (DMZ) consisting of two servers. VLANs are connected by a second layer switch Cisco 2950-24.

Communication with the internet is realized through the SDSL link with a speed of 2Mbit/s. Router Lucent Technologies DSL-HST-E that connects the institute's network to internet node in NETIA, is separated from the switch by a firewall. Firewall is an OpenBSD server running packet filter.

There are two machines working in DMZ. One of them is a PC machine on FreeBSD Unix, that acts as a name resolver (DNS), mail, http and ftp server. The second one is Hewlett Packard 9000 A-400 used for complex mathematical computation.

Local network, server area and the internet are strictly separated from each other. Communication between VLANs is routed, NATed and protected by a firewall:

- Communication between machines in the local network and internet can be initiated only by a local machine.
- Communication between machines in the local network and DMZ can be initiated only by a local machine.
- Computers can access the FreeBSD server from the internet only for specific services such as e-mail, ftp and http.
- HP A-400 machine can be accessed only from the local network or from the safe FreeBSD server.

Those rules guarantee easy access to the internet and local servers for local users and good protection against intrusion.

In addition e-mail service is protected by a very effective scanner Kaspersky Anti-Virus Business Optimal.

