



ACADEMY OF
ROMANIAN SCIENTISTS



University POLITEHNICA of Bucharest
Romanian National Committee of World Energy Council



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5th International Conference on Energy and Environment 2011

**Energy
for
a sustainable
development**

Final Program



International Conference on Energy and Environment

The International Conference on ENERGY and ENVIRONMENT (CIEM) is organised by the University POLITEHNICA of Bucharest, Institute for Studies and Power Engineering and WEC-Romanian National Committee in collaboration with the main Romanian companies, agencies and associations from the energy and environment sectors. The Conference is held under the auspices of Academy of Romanian Scientists.

The aims of CIEM is to respond to challenges in the rapidly developing fields of Power Engineering and Environmental Engineering, and to inspire both research studies and practical applications by promoting interaction among scientists from universities, research institutions, and industry.

Like the previous events, CIEM 2011 will provide an ideal venue for the development of new partnerships.

The CIEM 2011 conference will as usual feature an exhibition area where companies are invited to present themselves and their particular fields of interest.

We look forward to welcoming you to Bucharest.

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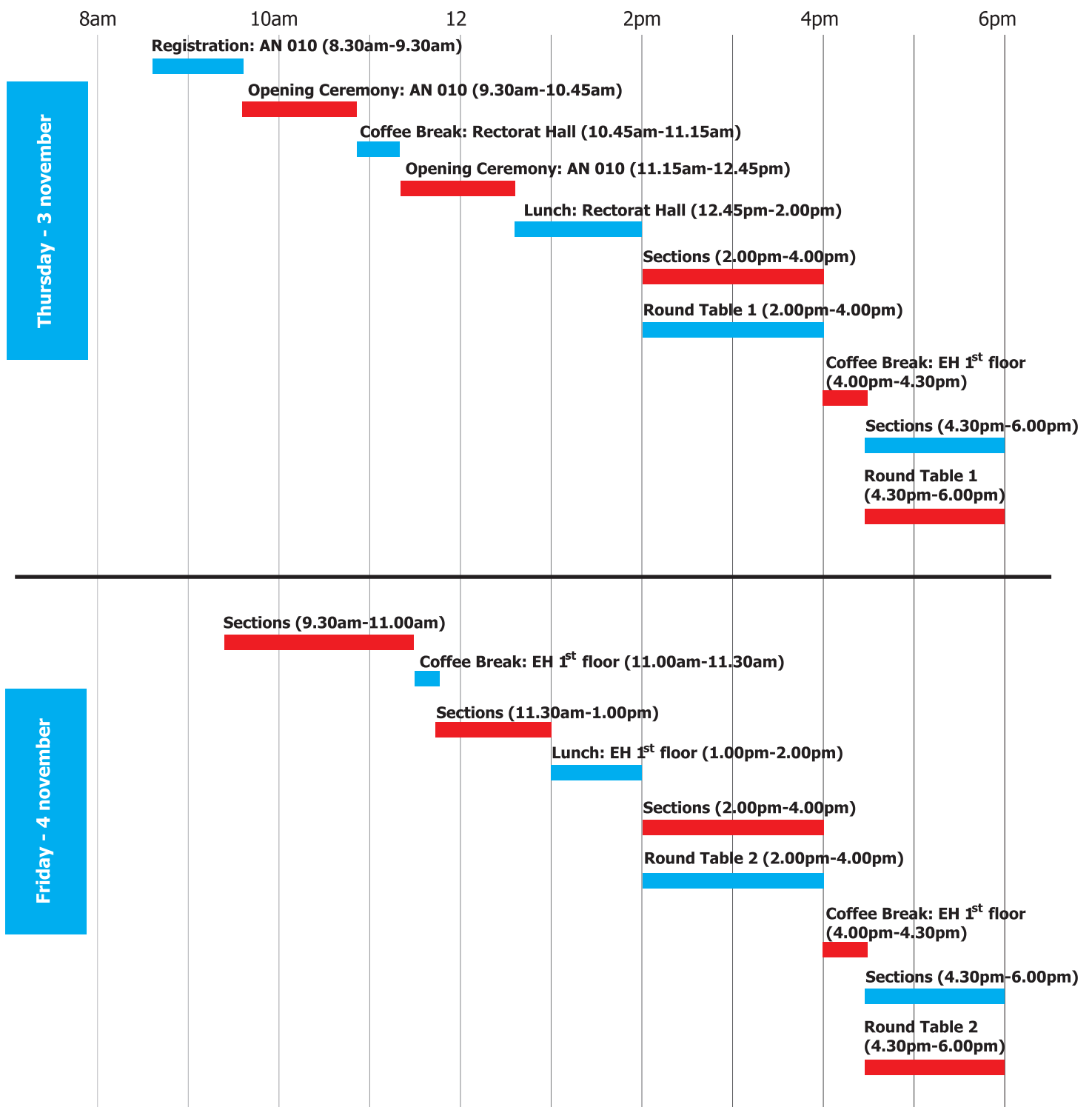
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Conference Program



Conference Program

Opening Ceremony (AN 010)

Conference Opening (Adrian Badea, President CIEM 2011)
Welcome Messages

Invited speakers:

Slav Slavov (WEC)

Derek Taylor (BELLONA)

Dan Gheorghiu (ISPE)

Silvian Ionescu (Garda de Mediu)

Sections

Section 1. Renewable Energies

Friday, 4.11.2011, 10.00am - 11.00am (Passive Houses - Senate Hall)

Friday, 4.11.2011, 11.30am - 1.00pm (room EH 017)

Friday, 4.11.2011, 2.00pm - 6.00pm (room EH 017)

Section 2. Energy Efficiency

Thursday, 3.11.2011, 2.00pm - 6.00pm (room EH 017)

Section 3. Smart Grids

Friday, 4.11.2011, 2.00pm - 6.00pm (room EI 204)

Section 4. Fossil Fuels Clean Technologies

Friday, 4.11.2011, 9.30am - 1.00pm (room EH 110)

Friday, 4.11.2011, 2.00pm - 6.00pm (room EH 110)

Section 5. Environmental Impact

Thursday, 3.11.2011, 2.00pm - 6.00pm (room ELa 024)

Friday, 4.11.2011, 9.30am - 1.00pm (room ELa 024)

Section 6. Hydraulics and Water Management

Friday, 4.11.2011, 9.30am - 1.00pm (room ELa 217)

Section 7. Power Equipment and Control Systems

Thursday, 3.11.2011, 2.00pm - 6.00pm (room ELa 217)

Section 8. Nuclear-Power Engineering

Thursday, 3.11.2011, 2.00pm - 6.00pm (room ENb 104)

Section 9. Power Systems

Thursday, 3.11.2011, 2.00pm - 6.00pm (room EI 204)

Round Tables

Round Table 1. CO₂ Capture and Storage

Thursday, 3.11.2011, 2.00pm - 6.00 pm (Senate Hall)

Round Table 2. Critical Infrastructures Protection

Friday, 4.11.2011, 2.00am - 6.00pm (Senate Hall)

Section 1. Renewable Energies (Senate Hall)

PASSIVE HOUSE INAUGURATION

Moderator: **Adrian Badea**

Section 1. Renewable Energies (room EH 017)

Moderators: **Horia Necula, Gheorghe Pauna**

Invited speaker: **Philippe DUQUENNE (Project Management in Renewable Energies Projects)**

Action plan for carrying out the renewable energy sources (RES) development objectives in ROMANIA between 2010 and 2020 (Gheorghe Păuna)

Combined heat and power prototype unit for residential use (Mihai Varlam, Mihai Culcer, Mariana Iliescu, Mircea Raceanu, Adrian Enache, Ioan Stefanescu)

A hydrogen-based peak power management unit (Mihai Varlam, Mihai Culcer, Adrian Enache, Mircea Raceanu, Mariana Iliescu, Adrian Badea, Ioan Stefanescu)

Moderators: **Mihai Varlam, Tiberiu Apostol**

The UNITN integrated approach for OFMSW treatment (Gianni Andreottola, Marco Ragazzi, Paola Foladori, Roberta Villa, Michela Langone, Elena Cristina Rada)

An assessment on seasonal analysis of wind characteristics and wind energy for one site in Dobrogea (Georgeta Bandoc, Mircea Degeratu, Ana Maria Florescu, Elena Dragomir)

Wind energy potential pro/versus electric energy production (Gheorghe Măgureanu, Petre-Cristian Răzuși)

Performance evaluation of a solar tracking PV panel (Tiberiu Tudorache, Constantin Daniel Oancea, Liviu Kreindler)

Solar stirling engine with cogeneration and storage using a polygonal fresnel mirror system (Monica Costea, Stoian Petrescu, Vlad Mariș, Michel Feidt, Octavian Malancioiu)

Agricultural biomass availability for energy conversion in Italy (Eleonora Girelli, Marco Ragazzi, Elisa Mallocci, Elena Cristina Rada, Loris Paternoster)

Cultivating the waste heaps from Moldova Nouă with forest species that have an energetic potential (Lucian Dincă, Ilie-Cosmin Căntar, Maria Dincă, Ioan Adam)

Thermo-physico-chemical analyses and calorific value of poultry processing industry waste (Constantin Stan, Adrian Badea, Cosmin Marculescu, Tiberiu Apostol)

Computing elements regarding the design of the technological lines for making sawdust briquettes (Iulian Dutu, Bogdan Mihalescu, Adrian Iliescu, Constantin Calinoiu)

De-centralized power plants technologies for surface fuels (Cosmin Marculescu)

HVAC solutions for the passive houses from University Politehnica of Bucharest (Constantin Ionescu)

Remediation of PAHs contaminated soils by pyrolysis treatments (Cora Bulmău, Adrian Badea, Irina Istrate)

Section 2. Energy Efficiency (room EH 017)

Moderators: Horia Necula, Mircea Ghițulescu

Invited speaker: Jocelyn Bonjour (Refrigerated trucks: from practical and technological issues to scientific challenges)

Refrigerated trucks: from practical and technological issues to scientific challenges (Jocelyn Bonjour)

Modeling of some typical Algerian buildings equipped with direct solar floor and energy consumption analysis (Habiba Kazeoui , Abdelkader Tahakourt , Abdelkrim Ait-Mokhtar , Rafik Belarbi)

Generic multi-objective optimization method of indoor and envelope systems' control (Florent Boithias, Mohamed El Mankibi, Pierre Michel)

Premium prices for energy efficient buildings (Daniela Popescu , Florin Breahna)

Energy case studies on a heat-pump system for a non-residential building (Mihai Marin , Iolanda Colda, Andrei Damian)

Economical considerations concerning radiant heating systems (Mirela Sanda Toropoc , Rodica Frunzulica)

Model analysis for the trend of some time series which are describing the energy efficiency in the railway substations (Alexandru Ștefanescu , Claudia Popescu , Mihai O. Popescu)

The modeling of the ensemble heat consumer thermal module operation at stabilized regimes (Maria Iuliana Bogdan)

Thermal dynamic behavior of single component: experimental analysis and numerical modeling (Paolo Baggio , Alessandro Prada)

A transient thermal analysis of a passive house by thermal networks (Tudor Baracu , Timur D. Mamut , Adrian Badea)

Supportive tool for local authorities in order to achieve their responsibilities with respect to energy savings and environment protection (Mariana Barbuta , Mircea Ghițulescu)

Electromagnetic features of economic lighting sources (Tudor Leonida , Marian Costea)

Upgrading of medium voltage substation, critical infrastructure components. Case study: "Constantin Dinculescu" Lab of Power Engineering Faculty (Gheorghe Comănescu , Sorina Costinaș)

Energy efficiency through intelligent management of building equipments (Vladimir Tanasiev, Adrian Badea)

Section 3. Smart Grids (room EI 204)

Moderators: Mircea Eremia, Raphael Caire

Invited speaker: Raphael Caire (Distributed operation of smart grids with embedded energy resources)

Coordinating the distributed energy sources through the virtual power plants concept (Lucian Toma , Bogdan Otomega)

Smart grids analysis (Alexandru Ștefanescu , Claudia Popescu , Mihai O. Popescu)

The impact of smart grids and distributed generation on the protection system (Daniel Razvan Costianu, Nicoleta Arghira, Ioana Fagarasan, Sergiu Stelian Iliescu)

A comparative analysis of classical and composite insulators behavior (Marian Costea , Ileana Băran)

Application of mixed-integer hybrid differential evolution to optimal reactive power dispatch (Cătălin Florin Ionescu , Constantin Bulac , Ion Triștiu , Alexandru Mandiș)

Vulnerability aria to disturbance in electricity network (Gabriel Constantin Bucătaru , Ion Triștiu , Nicolae Golovanov , Constantin Bulac , Alexandru Mandiș)

Control and protection of a multiterminal low voltage dc system based on VSC (Cristian Lazaroiu , Constantin Bulac , Mihai Popescu , Nicolae Golovanov)

Aspects of wind plants integration in romanian power grid (Claudia-Elena Done)

New models for power system state estimation (Ovidiu Ivanov, Mihai Gavrilăș, Bogdan Vicol)

Wind power forecast system calibration. Case study in Romania (Sebastian Enache, Petre Răzuși, Mircea Eremia)

Section 4. Fossil Fuels Clean Technologies (room EH 110)

Moderators: Michel Feidt, Adrian Adam, George Darie

Invited speaker: Michel Feidt (Energy versus Environment)

Energy Performance made in Romania - Gas Turbine at CET Brazi, cogeneration for the future

CO₂ capture from post-combustion gas by employing mea absorption process experimental investigations for pilot studies (Adrian Alexandru Badea , Cristian Florian Dincă)

Ecological burning of vegetable oils in addition with liquid fossil fuel, for energy generation (Adelina Panait)

Economical and technical analysis of CO₂ transport ways (Mihaela Norişor , Adrian Badea , Cristian Dincă)

Liquefied natural gases and liquefied petroleum gases as complementary sources of energy (Tudora Cristescu)

Simplicity and efficiency in the analysis of metallic material of power plants components (Mirela Tinica)

Moderators: Marian Dobrin, Florin Alexe

Achievements of ICEMENERG in clean and efficient combustion plants on hydrocarbons application CET Midia Navodari (Adrian Andrei Adam, Cristian Mandrean, Marian Vulpe, Ion Barbieru, Wilhelm Herbert, Tiberiu Vlaicu, Mihai Hacman)

Achieving burner for suspensoin/pulverised combustion of sawdust on average power plant (Ionel. Pîşă, Gheorghe Lăzăroiu, Lucian Mihăescu, Simona Enăşoaie)

Analyzing power reciprocating engines directories data (Diana Tuţică , Victor Cenuşă , Florin Alexe)

The techno-economic efficiency of the chp plant using simultaneously renewable energy resources and classic fuels (Paula Voicu , Victor Athanasovici)

Tri-generation in the tertiary sector in Europe (Eduard Minciuc, Roxana Pătraşcu)

Combined heat & power industrial plants with gas turbines & heat recovery steam generators feasibility study method and case analysis (Diana Tuţică , Victor Cenuşă , Florin Alexe)

Technic and environment analysis of an existing district heating system (Carmen Coman , Victor Athanasovici)

Minicogenerative solution - INGERSOLL RAND MT250 (Sorin Tomescu)

Aspects of using hydrogen in SI engine (Niculae Negurescu, Constantin Pana , Alexandru Cernat)

Opportunity for accessing transitional derogation provided for in article 10 C of the directive 2003/87/EC, for electricity production (Carmencita Constantin , Marian Dobrin , Veronica Petri , Mihaela Bedreagă , Roxana Ivan)

Strategic directions for the development of energy sector according to the new european policy (Anca Bardici , Irina Vodă , Anton Vlădescu, Marian Dobrin , Simona Teodorescu, Floarea Breazu)

Section 5. Environmental Impact (room ELA 024)

Moderators: Marco Ragazzi, Lăcrămioara Diana Robescu, Anca Marina Marinov

Water quality improvement using renewable energies (Catalina Raluca Mocanu , Liviu Valentin Balanescu , Dan Robescu)

Mathematical modeling of sharon biological wastewater treatment process (Lăcrămioara Diana Robescu , Cătălina Raluca Mocanu , Viorel Pătroescu , Costel Bumbac , Dan Niculae Robescu)

Stability analysis of a model for sharon biological wastewater treatment process (Lăcrămioara Diana Robescu)

Deposition near a sintering plant: preliminary comparison between two methods of measurements by deposimeters (Marco Ragazzi , Elena Cristina Rada , Marco Tubino , Marianna Marconi , Alessandro Chistè , Eleonora Girelli)

Perspectives of low-cost sensors adoption for air quality monitoring (Elena Cristina Rada , Marco Ragazzi , Marco Brini , Luca Marmo , Pietro Zambelli , Mauro Chelodi , Marco Ciolli)

Moderators: Marco Ragazzi, Lăcrămioara Diana Robescu, Anca Marina Marinov

The assessment of a new technology used for the treatment of petroleum contaminated soils laboratory study (Irina Istrate , A.Badea, Cora Bulmău, T. Apostol)

The treatment of wastewater sludge (Iuliana Rogoveanu)

Sustainable energy in wastewater treatment plants (Doru Manea , Dan Robescu , Aurel Presura)

Simulation of mixing in anaerobic digesters (Elena Manea , Dan Robescu , Aurel Presura)

MSW selective collection in two italian areas (Eleonora Girelli , Marco Ragazzi , Elena Cristina Rada)

Study on Stanca-Costesti lake eutrophication process causes, effects and management solutions (Liana Ioana Vuță , Gabriela Elena Dumitran)

Using numerical simulations for reducing the energetic costs of wastewater treatment plants (Răzvan Mihăilescu , Cătălina Raluca Mocanu , Dan Robescu)

Oxidation of biodegradable compounds inside a MBBR reactor (Ioana Corina Moga , Bogdan Dumitru Nășărimbă-Grecescu, Dan Robescu)

Integrated valorization system of MSW: metropolitan area case study: preliminary results (Gabriela Ionescu , Giacomo Merler , Elena Cristina Rada , Marco Ragazzi , Tiberiu Apostol)

Role of feedstock transport in the balance of primary pm emissions in two case-studies: RMSW incineration vs. Sintering plant (S. Ciuta , M. Schiavon , A. Chistè, M. Ragazzi, E.C. Rada, M. Tubino, A. Badea, T. Apostol)

Thursday 3.11.2011

Friday 4.11.2011

Section 6. Hydraulics and Water management (room ELa 217)

Moderators: Virgil Petrescu, Radu Popa

Measurement technique for air-water disperse system study (Gabriel Dan Ciocan , Florentina Bunea , Sébastien Houde , Monica Iliescu , Claire Deschênes)

The influence of the velocity induced by an aeration grid upon oxygen transfer (Florentina Bunea , Gabriela Oprina, Bogdan Nicolae , Gheorghe Băran)

The modernisation of the secondary intakes Draxin and Cascoe (Lucian Mândrea , Rareș Chihaia , Florentina Bunea2, Gabriela Oprina2, Gheorghe Voicu , Constantin Ivan)

Management of a hydroelectric mobile DAM (Carmen Anca Safta , Liliana Vasile)

Research studies regarding the conversion of mechanical energy into hydrostatic energy as well as its reconversion, storage and reuse (Adrian Georgian Pantiru, Bogdan Mihalescu, Petrică Krevey, Constantin Călinoiu)

HBMOA applied to design a water distribution network for a town of 50000 inhabitants (Sanda-Carmen Georgescu)

Chlorine concentration decay in the water distribution system of a town with 50000 inhabitants (Andrei-Mugur Georgescu , Sanda-Carmen Georgescu)

A new approach in the optimisation of hydroelectric power plant cascade (Vlad Florin Pîrăianu , Daniela Vasiliu , Nicolae Vasiliu , Constantin Drăgoi , Gheorghe Iana)

The Assessment of a Profitable Investment: Small Hydro Power Plant SHPP Ciurel Morii Lake (Elena Anghel, Răzvan Guzun, Gheorghe Militaru, Daniel Lagu, Basarab Guzun)

Section 7. Power Equipment and Control Systems (room ELa 217)

Moderators: Anton Anton, Sanda-Carmen Georgescu

Invited speakers: Gabriel Dan Ciocan, Olivier Teller , Francois Czerwinski (Variable speed pump-turbines technology)

Analysis of operating parameters during normal and transient regimes of a high head hydro power plant (Diana Maria Bucur , Georgiana Dunca, Eugen Constantin Isbășoiu, Constantin Călinoiu, Oana Teodora Roșioru)

Vibrations level analysis during the operation of a high head hydropower plant (Georgiana Dunca , Diana Maria Bucur , Eugen Constantin Isbășoiu, Constantin Călinoiu, Călin Mihail Ghergu)

Numerical investigation of the non-uniformity generated by the suction elbow of a storage pump (Gheorghică Gînga, Liviu Anton, Sebastian Muntean)

Numerical simulation of the flow in the draft tube of the kaplan turbine (Nicoleta Octavia Tanase , Florentina Bunea , G. D. Ciocan)

The study of the turboblower impeller on energy consumption (Andrei Stoicescu)

Velocity spectrum in axial relative motion of wind turbines (Sanda Budea , M.D. Cazacu)

Aerodynamic geometry optimization of a centrifugal blower (Bogdan Gherman, Cristina Silivestru, Marian Draghici)

Family of screw compressors with high pressure delivery - 45 ... 75 bar - used in gas industry (Marian Nițulescu, Valentin Silivestru, Cristian Slujitoru)

Testing of a screw expander group - electric generator (Valentin Silivestru, Nicolae Toma, Marian Nitulescu, Adrian Ungureanu, Valentin Petrescu, Cristian Slujitoru)

Evaluating the lifetime of hydro-mechanical equipment for low head hydropower plants (Constantin Drăgoi , Vlad Florin Pîrăianu , Constantin Pîrăianu)

Section 8. Nuclear - Power Engineering (room ENb 104)

Moderators: Petre Ghitescu, Adrian Panait

MCNP5 calculations compared to experimental measurements in Cea-Minerve reactor (Mirea Mladin , Daniela Mladin)

Calculation of fission products transport in a pool type reactor using CATHARE 2 (Daniela Mladin , Mirea Mladin, Stefan Covaci, Ilie Prisecaru)

Core neutronic effects at the use of burnable absorbers in CANDU fuel bundles (Iosif Prodea , Ilie Prisecaru)

Determination of difficult to measure nuclides in spent resins (Ruxandra Toma, Ilie Prisecaru, Cristian Dulama)

Study of fluid-structure interaction in liquid droplet impingement phenomena (Stefan Nicolici , Ilie Prisecaru , Petre Ghitescu)

Modeling transient behavior of CANDU SDS#2 during normal operation of the system (Ilie Prisecaru , Stefan Nicolici , Daniel Dupleac , Iulian Nita)

Experimental determination of the mechanical compression strength for candu type experimental fuel bundle (Tiberiu Gyongyoşi , Ilie Prisecaru And Valeriu Nicolae Panaitescu)

Study on the main factors influencing human performance in NPP operation (M. Farcasiu , I. Prisecaru)

Modeling and simulating of transient regimes for CANDU6 steam turbine (Melania Bigu, Iulian Pavel Nita, Ilie Prisecaru, Daniel Dupleac)

Solution for complying with new wano requirements for chemical parameters in the steam generators (Mihai Gheorghiu, Melania Bigu, Iulian Pavel Nita)

Accident analyses methodologies for NPP type PWR (Adriana Maxim, Claudia Gheorghe, Ilie Prisecaru, Virgil Ionescu)

Severe accidents in nuclear power plants between probability and reality (Elena Dinca, Cantemir Ciurea Ercau, Irina Sanda, Radian Sanda, Ilie Prisecaru)

Section 9. Power Systems (room EI 204)

Moderators: Gianfranco Chicco, Constantin Bulac

Invited speaker: Gianfranco Chicco (The evolving framework for electrical distribution system optimization)

Combined control actions to counteract long-term voltage instability (Bogdan Otomega , Lucian Toma, Constantin Bulac, Thierry Van Cutsem)

Automatic load reconnection after emergency undervoltage load shedding (Bogdan Otomega , Lucian Toma, Constantin Bulac, Thierry Van Cutsem)

Belief networks utilization for nodal power quality and availability assessment (Florin Munteanu , Ciprian Nemes)

Operational parameters evaluation for optimal wind energy systems development (Ciprian Nemeş , Florin Munteanu)

Complex system for the monitoring of Sibiu South 400/220/110/20 kV Power Station Transformers (Andrei Romanescu, Valentin Zaharescu, Aurora Moraru, Mihai Pasculescu, Basarab Guzun)

Comparative analysis of a statcom with additional capacitor and a SVC for implementing in a power system (Mirea Constantin)

The opportunity of using the hybrid solution for voltage regulation with svc device and automatic regulation of the tap changer (Costel Constantin , Iulia Cristina Constantin)

Power systems state estimation including PMU (Valeriu Iulian Presadă)

Electromagnetic radiation field near power lines and its environmental impact (Monica Atudori , Mugurel Rotariu)

Round table 1. CO₂ Capture and Storage (Senate Hall)

CCS International Round Table is the second event organised under the auspices of the Ministry of Economy, Trade and the Business Environment METBE, in a series of information dissemination activities within the “National Programme for CO₂ Capture and Storage 2020 horizon”. **The Round Table is organised by GeoEcoMar in partnership with ISPE and Politehnica University in Bucharest - UPB, being part of the International Energy and Environment Conference CIEM 2011, one of the most prestigious international scientific and academic event in the region, reaching its' 5th edition and being hosted by UPB, the main organiser.**

Topics

The organisers intend to point out for the Romanian and foreign invitees the following topics, and generate an opened debate on energy-climate issues related subjects:

- European CCS Roadmap
- Advanced concepts for CO₂ Capture
- Challenges for the CO₂ Onshore Transport Infrastructure
- New Technologies Developed for CO₂ Storage
- CCS Technology and Associated Risks

Speakers

Bellona Foundation

Alstom Carbon Capture, Germany

Ministry of Economy, Trade and the Business Environment National Agency for Mineral Resources

Politehnica University in Bucharest

GeoEcoMar

ISPE, Romania

Round table 2. Critical Infrastructures Protection(Senate Hall)

The term “**Critical Infrastructures**” relates to “those assets or parts thereof which are essential for the maintenance of critical societal functions, including the supply chain, health, safety, security, economic or social well-being of people”.

Topics

According to COM(2006)787 Critical Infrastructure (CI) encompass the following sectors and related sub sectors:

- Energy
- Nuclear industry
- Information, Communication Technologies, ICT
- Water
- Food
- Health
- Financial
- Transport
- Chemical industry

Speakers

National Defense University "Carol I"

The National Sanitary Veterinary and Food Safety Authority (ANSVSA)

Coordination Center for Critical Infrastructure Protection

CN TRANSELECTRICA

EURISC

Institute for Nuclear Research Pitesti

TELETRANS

S.C. METROUL S.A.

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 IMST - Facultatea de Ingineria și Managementul Sistemelor Tehnologice
 ISB - Facultatea de Ingineria Sistemelor Biotehnice
 Tr - Facultatea de Transporturi
 SIM - Facultatea de Știința și Ingineria Materialelor
 ILS - Facultatea de Inginerie în Limbi Străine
 SA - Facultatea de Științe Aplicate



