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**6<sup>TH</sup> ANNUAL CONFERENCE OF YOUNG SCIENTISTS ON ENERGY ISSUES**  
**CYSENI 2009, on 28-29<sup>th</sup> May**  
**May 28, 2009**  
**Kaunas**  
**Lithuania**

### Morning session

(Main Hall)

Chairman: D. Meilutytė-Barauskienė

<b>8.30-9.00</b>	Registration
<b>9.00-9.20</b>	Welcome
<b>9.20-9.40</b>	<u>M. Marčiukaitis</u> (Lithuanian Energy Institute, Lithuania). Peculiarities of the short-term wind power prediction of SEDOS wind turbines. Official reviewer: A. Skrinska (VGTU)
<b>9.40-10.00</b>	<u>L. Uzsilaityte</u> (Vilnius Gediminas Technical University, Lithuania). Life cycle model for the evaluation of energy efficiency in renovated public buildings. Official reviewer: V. Kveselis (LEI)
<b>10.00-10.20</b>	<u>J. L. Marao jr.</u> (Lithuanian Energy Institute, Lithuania). Assessment of producer gas cleaning and conditioning systems. Official reviewer: N. Pedisius (LEI)
<b>10.20-10.40</b>	<u>I. Pertmann</u> (Tallinn University of Technology, Estonia). Environmental effects of Pakri and Virtsu wind farms. Official reviewer: I. Konstantanaviciute (LEI)

### 10.40-11.00 Coffee break

### Section A

#### 2. Renewable energy source and their use

Section A1 (Main hall)

Chairman: D. Meilutytė-Barauskienė

<b>11.00-11.20</b>	<u>L. Zidonis</u> , S. Sinkunas, E. Puida (Kaunas University of Technology, Lithuania). The utilization of biomass for energy generation in Lithuania. Official reviewer: E. Perednis (LEI)
<b>11.20-11.40</b>	<u>E. Latdšoy</u> , A. Siirde (Tallinn University of Technology, Estonia). Enhanced selection of biofuel small-scale combined heat and power plant. Official reviewer: E. Jaraminiene (VGTU)
<b>11.40-12.00</b>	A. Kanapickas, <u>G. Macijauskiene</u> (Vytautas Magnus University, Lithuania). Wind power plants and environmental noise assessment. Official reviewer: V. Katinas (LEI)

### 12.00-13.00 Lunch

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<b>1. Hydrogen and fuel cells</b> <b>Section A2 (Main hall)</b> Chairman: D. Meilutytė-Barauskienė	
<b>13.00-13.20</b>	<u>M. Lelis</u> (Vytautas Magnus University, Lithuania), D. Milcius, E. Wirth (Lithuanian Energy Institute, Lithuania), D. Noreus, K. Jansson, U. Halenius, T. Yokosawa, T. Sato (Stockholm University, Sweden). Search for metal – insulator transition in MG2NIH4 films which could be switched by mechanical sensitive stacking faults. Official reviewer: L. Pranevicius (LEI)
<b>13.20-13.40</b>	<u>D. Virbukas</u> , O. Katkauskaitė, G. Laukaitis, J. Dudonis (Kaunas University of Technology, Lithuania). Doped cerium oxide thin films formed by e-beam deposition technique. Official reviewer: A. Iljinas (KTU)
<b>13.40-14.00</b>	<u>A. A. Nesteruk</u> , V. I. Kalinin (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Experimental technique for investigation of sodium borohydride hydrolysis by hydrogenometry. Official reviewer: L. Pranevicius (KTU)
<b>14.00-14.20</b>	<u>T. Salkus</u> , V. Venskute (Vilnius University, Lithuania). Electrical properties of CGO-10, 20 solid electrolyte ceramics. Official reviewer: G. Laukaitis (KTU)

## 14.20-14.40 Coffee break

<b>COST DAY SESSION</b> <b>Section A3 (Main hall)</b> Chairman: R. Levinskas	
<b>14.40-15.10</b>	C. Whelan (COST Office, MPNS DC, Belgium), D. Stankeviciene (COST-Lithuania), <u>R. Levinskas</u> (Lithuanian Energy Institute, Lithuania). COST-MPNS mission and challenges
<b>15.10-15.40</b>	R. Keiski (University of Oulu, Finland). Research and development of bioethanol processing for fuel cells
<b>15.40-16.10</b>	D. Sojref (WTTC, Germany). Supercapacitor based high performance energy storage systems.
<b>16.10-16.30</b>	<b>Coffee break</b>
<b>16.30-17.00</b>	<u>M. Lelis</u> , D. Milcius (Lithuanian Energy Institute, Lithuania). Physical vapour deposition technologies for energy applications.
<b>17.00-17.30</b>	<u>K. Baltakys</u> (Kaunas University of Technology, Lithuania), I. Lukosiute (Lithuanian Energy Institute, Lithuania) and A. Baltusnikas (Kaunas University of Technology, Lithuanian Energy Institute, Lithuania). Synthesis, modification and application of nanosized gyrolite.
<b>17.30-18.00</b>	<u>M. Milieska</u> , R. Kezelis, V. Valincius (Lithuanian Energy Institute, Lithuania). Realization and analysis of inorganic metal oxides plasma melting and fibrillation process. Official reviewer: V. Snapkauskiene (LEI)

## 18.00 Conference dinner (canteen)

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## Section B

### 4. Energy efficiency and savings

#### Section B1 (Room AK-202)

Chairman: A. Bertasiene

<b>11.00-11.20</b>	<u>A. Hlebnikov</u> , A. Siirde, A. Paist (Tallinn University of Technology, Estonia). The renovation plan development example for old district heating network in Narva city. Official reviewer: N. Rasburskis (UAB "AF-TSP")
<b>11.20-11.40</b>	<u>R. Savickas</u> (Vilnius Gediminas Technical University, Lithuania). Influences of building shape indicator on building energy consumption efficiency. Official reviewer: V. Kveselis (LEI)
<b>11.40-12.00</b>	A. Kreslins, <u>A. Ramata</u> (Riga Technical University, Latvia). Energy efficient ventilating systems in piggeries. Official reviewer: E. Juodis (VGTU)

### 12.00-13.00 Lunch

### 7. Nanosciences and Nanotechnologies, investigations on multifunction materials

#### 10. Fusion energy

#### Section B2 (Room AK-202)

Chairman: O. Antipova

<b>13.00-13.20</b>	<u>P. Gecys</u> , M. Gedvilas (Institute of Physics, Lithuania). Laser structuring of flexible thin-film solar cells. Official reviewer: A. Dziugys (LEI)
<b>13.20-13.40</b>	<u>J. Zavickis</u> , M. Knite, V. Teteris (Riga Technical University), G. Mallefan (University of Toulon and the Var France, France). Polyisoprene-nanostructured carbon black functional composite for pressure sensors. Official reviewer: R. Levinskas (LEI)
<b>13.40-14.00</b>	<u>M. Povilaitis</u> , E. Urbonavicius (Lithuanian Energy Institute, Lithuania). Analysis of the W7-X facility vacuum vessel with the COCOSYS lumped-parameter code in case of 40 mm diameter pipe rupture. Official reviewer: A. Kaliatka (LEI)
<b>14.00-14.20</b>	<u>T. Kacegavicius</u> (Lithuanian Energy Institute, Lithuania). The analysis of loss-of-coolant accident in fusion facility W7-X with ASTEC code. Official reviewer: A. Tonkūnas (LEI)

### 14.20-14.40 Coffee break

<b>14.40-18.00</b>	<b>COST DAY SESSION</b> <b>Section A3 (Main hall)</b>
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### 18.00 Conference dinner (canteen)

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## Section C

	<b>1. Hydrogen and fuel cells</b> <b>Section C1 (Library)</b> Chairman: T. Kaliatka
<b>11.00-11.20</b>	<u>J. Hodakovska</u> , J. Kleperis (University of Latvia, Latvia). Polymer membranes for fuel cells. Official reviewer: G. Laukaitis (KTU)
<b>11.20-11.40</b>	<u>S. Tuckute</u> , M. Lelis (Vytautas Magnus University, Lithuania), E. Wirth (Lithuanian Energy Institute, Lithuania). Artefacts of physical vapour deposition in performance of MG-NI hydrogen storage system. Official reviewer: D. Milcius (LEI)
<b>11.40-12.00</b>	<u>A. Baciasskas</u> , L. Pranevicius (Vytautas Magnus University, Lithuania), D. Milcius (Lithuanian Energy Institute, Lithuania). Plasma activated permeation of hydrogen through membranes. Official reviewer: L. Pranevicius (KTU)

## 12.00-13.00 Lunch

	<b>1. Hydrogen and fuel cells</b> <b>Section C2 (Library)</b> Chairman: T. Kaliatka
<b>13.20-13.40</b>	<u>O. S. Filatova</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Heat pipes for fuel cells thermal management. Official reviewer: B. Cesna (LEI)
<b>13.40-14.00</b>	<u>E. Rancans</u> , L. Grinberga, J. Kleperis (University of Latvia, Latvia). Research of hydrogen sorption properties using SIEVERT type equipment PCTPRO 2000. Official reviewer: D. Milcius (LEI)
<b>14.00-14.20</b>	<u>M. Vanags</u> , J. Kleperis, G. Bajars, G. Vaivars (University of Latvia, Latvia). Water electrolysis – traditional and uncommon aspects. Official reviewer: D. Milcius (LEI)

## 14.20-14.40 Coffee break

<b>14.40-18.00</b>	<b>COST DAY SESSION</b> <b>Section A3 (Main hall)</b>
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## 18.00 Conference dinner (canteen)

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## 6<sup>TH</sup> ANNUAL CONFERENCE OF YOUNG SCIENTISTS ON ENERGY ISSUES CYSENI 2009, on 28-29<sup>th</sup> May

May 29, 2009

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### Section A

<b>6. Investigations in the fields of thermal physics, fluid mechanics and metrology</b> <b>Section A1 (Main Hall)</b> Chairman: D. Meilutytė-Barauskienė	
<b>9.00-9.20</b>	<u>A. Bertasiene</u> (Lithuanian Energy Institute, Lithuania). Research of influence of medium condition and flow perturbation on reproduced air velocity values. Official reviewer: M. Šeporaitis (LEI)
<b>9.20-9.40</b>	M. Valincius, <u>S. Gasiūnas</u> (Lithuanian Energy Institute, Lithuania). Experimental investigation and modeling of shear stresses at interface of two phase flow. Official reviewer: J. Tonkonogij (LEI)
<b>9.40-10.00</b>	A. Krumins, U. Pelite, E. Dzelzitis, <u>A. Lešinskis</u> (Riga Technical University, Latvia). Case study of ventilation and air conditioning system development for archive premises. Official reviewer: K. Ciuprinskas (VGTU)
<b>10.00-10.20</b>	J. Gylys, T. Zdankus, M. Gylys, R. Maladauskas, <u>R. Jonynas</u> (Kaunas University of Technology, Lithuania). Heat transfer between in-line tube bundle and downward directed foam flow. Official reviewer: B. Cesna (LEI)
<b>10.20-10.40</b>	<u>A. A. Brin</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Water droplet evaporation in a high temperature gas flow. Official reviewer: A. Slanciauskas (LEI)

### 10.40-11.00 Coffee break

<b>6. Investigations in the fields of thermal physics, fluid mechanics and metrology</b> <b>5. Knowledges for energy policy making</b> <b>Section A2 (Main hall)</b> Chairman: D. Meilutytė-Barauskienė	
<b>11.00-11.20</b>	<u>I. Briliute</u> (Lithuanian Energy Institute, Lithuania). The influence of flow pulsations on metrological characteristics of water meters. Official reviewer: R. Pabarcus (LEI)
<b>11.20-11.40</b>	<u>G. Drumstas</u> (Lithuanian Energy Institute, Lithuania). Modeling of mixed convection heat transfer in an inclined flat channel. Official reviewer: J. Tonkonogij (LEI)
<b>11.40-12.00</b>	<u>E. F. Dzenajaviciene</u> (Lithuanian Energy Institute, Lithuania). Regional possibilities to cover heat and electricity generation demand using biomass from forest cutting residues. Official reviewer: N. Pedisius (LEI)

### 12.00-13.00 Lunch

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<b>5. Knowledges for energy policy making</b> <b>Section A3 (Main hall)</b> Chairman: D. Meilutytė-Barauskienė	
<b>13.00-13.20</b>	<u>K. Bieksa</u> , A. Kleviene (Lithuanian Energy Institute, Lithuania). Analysis of accounting models of sustainable development of Lithuanian energy economy. Official reviewer: A. Galinis (LEI)
<b>13.20-13.40</b>	M. G. Gnoni, <u>G. Lettera</u> (University of Salento, Italy). Evaluation of logistic activity on sustainability of a biofuel energy source. Official reviewer: V. Katinas (LEI)
<b>13.40-14.00</b>	<u>L. Martisauskas</u> , J. Augutis (Lithuanian Energy Institute, Lithuania). Mathematical modeling of security of energy supply disturbance scenarios. Official reviewer: A. Jonaitis (KTU)
<b>14.00-14.20</b>	<u>I. Martinkute</u> (Law firm, Lithuania). The energy charter treaty: implications for Lithuanian energy security. Official reviewer: V. Miškinis (LEI)

**15.00-16.00 Final discussion and closure (Main hall)**

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## Section B

<b>11. Nuclear fission and radiation protection</b> <b>Section B1 (Room AK-202)</b> Chairman: O. Antipova	
<b>9.00-9.20</b>	<u>A. Kontautas</u> , E. Urbonavicius (Lithuanian Energy Institute, Lithuania). Preliminary analysis of aerosol deposition distribution in PHEBUS containment under FPT-3 experiment conditions. Official reviewer: A. Adomavicius (KTU)
<b>9.20-9.40</b>	<u>R. Voronov</u> (Lithuanian Energy Institute, Lithuania). Human reliability analysis for probabilistic safety assessment of Ignalina NPP. Official reviewer: R. Kristolaitis (LEI)
<b>9.40-10.00</b>	<u>R. Kilda</u> (Lithuanian Energy Institute, Lithuania). Modeling peculiarities of radionuclide migration from bitumenized waste. Official reviewer: E. Urbonavicius (LEI)
<b>10.00-10.20</b>	<u>A. Simonis</u> (Lithuanian Energy Institute, Lithuania). Estimation of radiation doses during dismantling a pressured tank of RBMK-1500 reactor emergency core cooling system. Official reviewer: D. Adliene (KTU)
<b>10.20-10.40</b>	<u>D. Dvarvietis</u> , V. Stanevicius, A. Kanapickas (Vytautas Magnus University, Lithuania). Mobile phone radiation at different operation modes. Official reviewer: Z. Rutkuniene (KTU)

## 10.40-11.00 Coffee break

<b>11. Nuclear fission and radiation protection</b> <b>Section B2 (Room AK-202)</b> Chairman: O. Antipova	
<b>11.00-11.20</b>	<u>A. Slavickas</u> , R. Pabarcus (Lithuanian Energy Institute, Lithuania). Conservative conditions in modernized RBMK-1500 reactor core during reactivity initiating accident. Official reviewer: E. Urbonavicius (LEI)
<b>11.20-11.40</b>	O. A. Bezshyyko, L. O. Golinka-Bezshyyko, I. M. Kadenko, <u>O. A. Kovalenko</u> (Taras Shevchenko National University of Kiev, Ukraine), A. N. Vodin, A. N. Dovbnaya, S. N. Olejnik, G. E. Tuller (Kharkov Institute of Physics and Technology, Ukraine), V. A. Kushmir, V. V. Mitrochenko (NSC KIPT, Ukraine), O. I. Levon, I. A. Maliuk (Institute for Nuclear Research, Ukraine). Investigation of photonuclear reaction products on silver and indium isotopes for bremsstrahlung energies above 34 MeV. Official reviewer: A. Plukis (FI)
<b>11.40-12.00</b>	G. P. Kamuntavicius, A. Masalaite, <u>S. Mickevicius</u> (Vytautas Magnus University, Lithuania). Analytical solutions of the Schrodinger equation for finite harmonic-oscillator potential wells. Official reviewer: A. Dziugys (LEI)

## 12.00-13.00 Lunch

## 15.00-16.00 Final discussion and closure (Main hall)

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## Section C

<b>8. Investigations of combustion and plasma processes</b> <b>Section C1 (Library)</b> Chairman: A. Slavickas	
<b>9.00-9.20</b>	<u>Y. A. Baranyshyn</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus), K. N. Kasparov, L. I. Belaziorova (B. I. Stepanov Institute of Physics, Belarus). Fast response time photoemission measurements of gas temperature behind the shock waves. Official reviewer: A. Dziugys (LEI)
<b>9.20-9.40</b>	<u>K. Zakarauskas</u> (Lithuanian Energy Institute, Lithuania). Research of glycerol combustion. Official reviewer: V. Grigaitiene (LEI)
<b>9.40-10.00</b>	<u>V. M. Grishchenko</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Erosion plasma characteristics in plasma – obstacle interaction region. Official reviewer: V. Valincius (LEI)
<b>10.00-10.20</b>	<u>Z. Kavaliauskas</u> , L. Marcinauskas, L. Pranevicius, A. Baltusnikas (Lithuanian Energy Institute). Properties of supercapacitors fabricated by plasma technologies. Official reviewer: G. Laukaitis (KTU)
<b>10.20-10.40</b>	<u>M. Yu. Chernik</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Averaged temperature and concentration distribution of electrons measurements in barrier discharge plasma. Official reviewer: V. Valincius (LEI)

## 10.40-11.00 Coffee break

<b>8. Investigations of combustion and plasma processes</b> <b>Section C2 (Library)</b> Chairman: A. Bertasiene	
<b>11.20-11.40</b>	<u>I. N. Shatan</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Application of high-frequency barrier discharge for flat plate drag reduction. Official reviewer: D. Milcius (LEI)
<b>11.40-12.00</b>	<u>V. V. Leschevich</u> (A.V. Lykov Institute of the Heat and Mass Transfer, Belarus). Combustion of metal particles in oxygen atmosphere in rapid compression machine. Official reviewer: V. Valincius (LEI)

## 12.00-13.00 Lunch

<b>3. Smart energy networks</b> <b>Section C3 (Library)</b> Chairman: A. Slavickas	
<b>13.00-13.20</b>	<u>N. Rutkauskaite</u> , I. Konstantinaviciute, V. Radziukynas (Lithuania Energy Institute, Lithuania). Forecasting of electricity demand in household sector using the econometric model. Official reviewer: V. Miskinis (LEI)
<b>13.20-13.40</b>	<u>O. Kochukovs</u> , A. Mutule (Institute of Physical Energetic, Latvia). Analysis of power system development of the Baltic states. Official reviewer: E. Norvaisa (LEI)

## 15.00-16.00 Final discussion and closure (Main hall)