

## POSTERS

**Monday, 22 May**

**P01**

**Extension of Meixner theory of acoustic damping: The role of entropy flux**

Kovacs Robert<sup>1</sup>, Ván Péter<sup>1</sup>

<sup>1</sup>*Wigner RCP, HAS, Department of Theoretical Physics, Budapest, HUNGARY*

**P02**

**A discrete dissipative physical problem: The damped harmonic oscillator**

Gambár Katalin<sup>1</sup>, Lendvai Marianna<sup>1</sup>, Lovassy Rita<sup>1</sup>, Bugyás József<sup>1</sup>

<sup>1</sup>*Institute of Microelectronics and Technology, Óbuda University, Budapest, HUNGARY*

**P03**

**Complex potentials in the description of dissipation**

Márkus Bence G.<sup>1,2</sup>, Márkus Ferenc<sup>1</sup>

<sup>1</sup>*Department of Physics, Budapest University of Technology and Economics, Budapest, HUNGARY*; <sup>2</sup>*MTA-BME Lendület Spintronics Research Group (PROSPIN), Budapest, HUNGARY*

**P04**

**Is thermodynamic irreversibility a consequence of the expansion of the universe?**

Osváth Szabolcs<sup>1</sup>

<sup>1</sup>*Semmelweis University, Budapest, HUNGARY*

**P05**

**A hierarchical structure of entropy and exergy properties definition**

Palazzo Pierfrancesco<sup>1</sup>

<sup>1</sup>*University Sapienza Rome Italy, Department of Astronautic, Electric and Energetic Engineering (DIAEE), Roma, ITALY*

**P06**

**Stochastic thermodynamics of a particle in a box**

Quan Haitao<sup>1</sup>

<sup>1</sup>*Peking University, Beijing, CHINA*

**P07**

**Thermodynamic theory of transfer phenomena in nanosystems and properties of thin layer catalysts**

Serdyukov Sergey Ivanovich<sup>1</sup>, Sizova Irina A.<sup>2</sup>, Maksimov Anton L.<sup>1</sup>

<sup>1</sup>*Moscow State University, Chemistry Department, Moscow, RUSSIA*; <sup>2</sup>*Topchiev Institute of Petrochemical Synthesis, Moscow State University, Moscow, RUSSIA*

**P08**

**Influence of dynamic conditions on results of metals thermal diffusivity measurements**

Ermishkin Viacheslav Alexandro<sup>1</sup>, Kulagin Sergej Pavlovich<sup>1</sup>, Tomenko Alexander Konstantinov<sup>1</sup>, Minina Natalia Anatolievna<sup>1</sup>

<sup>1</sup>*Institut of Metallurgy and Materials of Russian Academy of Sciences, Laboratory of high-voltage electron microscopy, Moscow, RUSSIA*

**P09**

**A generalized correlation for critical pressure calculation based on an innovative ideal critical pressure parameter**

Grigante Maurizio<sup>1</sup>

<sup>1</sup>*University of Trento, Civil Environmental and Mechanical Engineering, Trento, ITALY*

**P10**

**Some thermoelastic optophononic devices**

Jou David<sup>1</sup>, Criado-Sancho Manuel<sup>1</sup>

<sup>1</sup>*Universitat Autònoma de Barcelona, Departament de Física, Bellaterra, SPAIN*

**P11**

**Assessment of thermal characteristics of metal according to measurements of its reflectivity ability**

Minina Natalia Anatolievna<sup>1</sup>, Ermishkin Viacheslav Alexandrovich<sup>1</sup>, Kudriavtchev Evgenij Mihailovi<sup>2</sup>, Roshupkin Vladimir Vladimirovi<sup>1</sup>

<sup>1</sup>*Institut of Metallurgy and Materials of Russian Academy of Sciences, laboratory of Physical Researchers, Moscow, RUSSIA;* <sup>2</sup>*Physical Institute of Russian Academy of Sciences, Physical laboratory, Moscow, RUSSIA*

**P12**

**Density of the binary system HFE-7100 + 1-Propanol at temperatures from 298.15 K to 393.15 K and at pressures up to 70 MPa**

Muñoz-Rujas Natalia<sup>1</sup>, Aguilar Fernando<sup>1</sup>, Montero Eduardo A.<sup>1</sup>

<sup>1</sup>*Universidad de Burgos, Burgos, SPAIN*

**P13**

**A new corresponding-states based correlation for the surface tension of refrigerants**

Cachadiña Gutiérrez Isidro<sup>1</sup>, Mulero Díaz Ángel<sup>1</sup>, Tian Jianxiang<sup>2</sup>

<sup>1</sup>*Universidad de Extremadura, Dpto. Física Aplicada, Badajoz, SPAIN;* <sup>2</sup>*Qufu Normal University, Department of Physics, Qufu, CHINA*

**P14**

**Equilibrium thermodynamic system equivalent of the non-equilibrium closed-cup flash point system**

Gerbaud Vincent<sup>1</sup>, Shcherbakova Nataliya<sup>1</sup>, Da Cunha Sergio<sup>1</sup>

<sup>1</sup>*Laboratoire de Génie Chimique, Toulouse, FRANCE*

**P15**

**On the divergence of the constant volume heat capacity at the critical point**

Quiñones-Cisneros Sergio E.<sup>1,2</sup>, Deiters Ulrich K.<sup>1</sup>

<sup>1</sup>*University of Cologne, Institut für Physikalische Chemie, Cologne, GERMANY;* <sup>2</sup>*F-Thermo Services, Cologne, GERMANY*

**P16**

**Percolation loci as thermodynamic fluid phase bounds: Evidence from computational studies of model fluids**

Woodcock Leslie V<sup>1</sup>

<sup>1</sup>*University of Algarve, Physics, Faro, PORTUGAL*

**P17**

**Thermodynamic approach to dielectric parameters of human blood: Application to early medical diagnostics of tumors**

Kizilova Natalia<sup>1,2</sup>, Batyuk Liliya<sup>3</sup>

<sup>1</sup>*Warsaw University of Technology, ITiMS, Warsaw, POLAND;* <sup>2</sup>*Vilnius Gediminas Technical University, Vilnius, LITHUANIA;* <sup>3</sup>*Kharkiv National Medical University, Kharkiv, UKRAINE*

**Tuesday, May 23**

**P18**

**Galilean and special relativistic fluids**

Ván Peter<sup>1</sup>

<sup>1</sup>*MTA Wigner RCP, Theoretical Phys., Budapest, HUNGARY*

**P19**

**Nonequilibrium thermodynamical internal variable description of rheology of solids in the generic framework**

Fülöp Tamás<sup>1</sup>, Szücs Mátyás<sup>1</sup>

<sup>1</sup>*BME, Department of Energy Engineering, Budapest, HUNGARY*

**P20**

**Modeling of ballistic heat conduction in NAF experiments**

Kovacs Robert<sup>1</sup>, Ván Péter<sup>1</sup>

<sup>1</sup>*Wigner RCP, HAS, Department of Theoretical Physics, Budapest, HUNGARY*

**P21**

**Non-Fourier heat conduction: numerical and experimental study**

Lovas Ádám<sup>1</sup>

<sup>1</sup>*Budapest University of Technology and Economics, Budapest, HUNGARY*

**P22**

**Violation of the maximum principle and negative solutions for pulse propagation in Guyer–Krumhansl model**

Zhukovsky Konstantin<sup>1</sup>

<sup>1</sup>*M.V.Lomonosov Moscow State University, Faculty of Physics, Moscow, RUSSIA*

**P23**

**Recommended correlations for the surface tension of unsaturated aliphatic acids**

Mulero Angel<sup>1</sup>, Sanjuán Eva L.<sup>2</sup>, Cachadiña Isidro<sup>1</sup>

<sup>1</sup>*University of Extremadura, Applied Physics Department, Badajoz, SPAIN;* <sup>2</sup>*University of Extremadura, Mathematics Department, Badajoz, SPAIN*

**P24**

**Diffusion and thermodiffusion in ternary mixture**

Mialdun Aliaksandr<sup>1</sup>, Shevtsova Valentina<sup>1</sup>

<sup>1</sup>*University of Brussels, Brussels, BELGIUM*

**P25**

**Energetic study of a low dissipation heat and refrigerator engine, the role of the parameters of control and dissipation symmetries**

Gonzalez-Ayala Julian<sup>1</sup>, Medina Domínguez Alejandro<sup>1</sup>, Mateos Roco José Miguel<sup>1</sup>, Calvo Hernández Antonio<sup>1</sup>

<sup>1</sup>*Universidad de Salamanca, Applied Physics, Salamanca, SPAIN*

**P26**

**Conditions for minimum entropy production in chemical reactors**

Kingston Diego<sup>1</sup>, Razzitte Adrian C.<sup>1</sup>

<sup>1</sup>*Universidad de Buenos Aires, Facultad de Ingeniería, Buenos Aires, ARGENTINA*

**P27**

**An Analytical study of an endoreversible Curzon-Ahlborn cycle with the Dulong-Petit heat transfer law working at maximum ecological regime**

Paez-Hernandez Ricardo Teodoro<sup>1</sup>, Portillo-Dáz P.<sup>1</sup>, Ladino-Luna D.<sup>1</sup>, Ramírez-Rojas A.<sup>1</sup>, Sánchez-Salas N.<sup>2</sup>

<sup>1</sup>Universidad Autonoma Metropolitana, CBI, Mexico Df, MEXICO; <sup>2</sup>Escuela Superior de Física y Matemáticas, Departametno de Física, Ciudad de México, MEXICO

**P28**

**Optimization of low-dissipation Carnot engine under saving functions**

Sanchez-Salas Norma<sup>1</sup>, Paez-Hernandez Ricardo Teodoro<sup>2</sup>, Chimal-Eguía Juan C.<sup>1</sup>

<sup>1</sup>Instituto Politecnico Nacional, Departamento de Física, Mexico City, MEXICO; <sup>2</sup>Universidad Autonoma Metropolitana, Mexico Df, MEXICO

**P29**

**Energy principles in thermodynamics**

Tian Zhao<sup>1</sup>, Guo Zeng-Yuan<sup>1</sup>

<sup>1</sup>Tsinghua University, Department of Engineering Mechanics, Beijing, CHINA

**P30**

**Effects of the generalization of an optimum operating regime on the construction of an endoreversible engine**

Valencia-Ortega Gabriel<sup>1</sup>, Levario-Medina Sergio<sup>1</sup>, Arias-Hernandez Luis A.<sup>1</sup>

<sup>1</sup>Instituto Politécnico Nacional, Escuela Superior de Física y Matemáticas, Mexico City, MEXICO

**P31**

**Nonequilibrium empiric, caloric and entropic temperatures and reference equilibrium values for hidden variables**

Jou David<sup>1</sup>

<sup>1</sup>Universitat Autonoma de Barcelona, Departament de Física, Bellaterra, SPAIN

**P32**

**Dusty gas model in different thermodynamics frameworks**

Vágner Petr<sup>1</sup>, Pavelka Michal<sup>1</sup>, Klika Václav<sup>2</sup>

<sup>1</sup>Faculty of Mathematics and Physics, Charles University, Mathematical Institute, Prague, CZECH REPUBLIC; <sup>2</sup>Czech Technical University, Faculty of Nuclear Physics and Engineering, Prague, CZECH REPUBLIC

**Wednesday, May 24**

**P33**

**Preliminary study on the relationship between statistical entropy coordinates and the mechanical behaviour of granular materials**

Barreto Daniel<sup>1</sup>, Imre Emoke<sup>2</sup>

<sup>1</sup>Edinburgh Napier University, Edinburgh, UNITED KINGDOM; <sup>2</sup>Obuda University, Budapest, HUNGARY

**P34**

**Volumetric, speed of sound and refractive index data for NN-dimethylacetamide + 2-alkanone systems at several temperatures**

Cobos Ana<sup>1</sup>, Hevia Fernando<sup>1</sup>, González Juan Antonio<sup>1</sup>, García de la Fuente Isaías<sup>1</sup>, Alonso-Tristán Cristina<sup>2</sup>

<sup>1</sup>Universidad de Valladolid, G.E.T.E.F., Departamento de Física Aplicada, Valladolid, SPAIN; <sup>2</sup>Escuela Politécnica Superior de Burgos, Departamento de Ingeniería Electromecánica, Burgos, SPAIN

**P35**

**Volumetric, speed of sound, refractive index and permittivity data for N,N-dimethylformamide, N,N-dimethylacetamide + acetophenone systems at several temperatures**

Cobos Ana<sup>1</sup>, Hevia Fernando<sup>1</sup>, González Juan Antonio<sup>1</sup>, García de la Fuente Isaías<sup>1</sup>, Sanz Luis Felipe<sup>1</sup>

<sup>1</sup>Universidad de Valladolid, G.E.T.E.F., Departamento de Física Aplicada, Valladolid, SPAIN

**P36**

**Obtaining the Empirical Temperature from the Zero Law of Thermodynamics: Zemansky, Kratzer and Päsler**

Gómez-Estévez Juan Luis<sup>1</sup>

<sup>1</sup>Universitat de Barcelona, Dept. Física de la Materia Condensada, Facultat de Física, Barcelona, SPAIN

**P37**

**Relative permittivities of N,N-dimethylformamide + N-propylpropan-1-amine, + N-butylbutan-1-amine, + butan-1-amine, or + hexan-1-amine systems at several temperatures**

Hevia Fernando<sup>1</sup>, González Juan Antonio<sup>1</sup>, García de la Fuente Isaías<sup>1</sup>, Sanz Luis Felipe<sup>1</sup>, Cobos José Carlos<sup>1</sup>

<sup>1</sup>Universidad de Valladolid, Valladolid, SPAIN

**P38**

**Orientational effects in alkanone, alkanal or dialkyl carbonate + alkane mixtures and in alkanone + alkanone or + dialkyl carbonate systems**

Hevia Fernando<sup>1</sup>, González Juan Antonio<sup>1</sup>, Alonso-Tristán Cristina<sup>2</sup>, García de la Fuente Isaías<sup>1</sup>, Sanz Luis Felipe<sup>1</sup>

<sup>1</sup>Universidad de Valladolid, Valladolid, SPAIN; <sup>2</sup>Universidad de Burgos, Burgos, SPAIN

**P39**

**Dielectric and refractive index measurements of 1-alkanol + N-propylpropan-1-amine systems at several temperatures**

Hevia Fernando<sup>1</sup>, Cobos Ana<sup>1</sup>, González Juan Antonio<sup>1</sup>, García de la Fuente Isaías<sup>1</sup>, Alonso-Tristán Cristina<sup>2</sup>

<sup>1</sup>Universidad de Valladolid, Valladolid, SPAIN; <sup>2</sup>Universidad de Burgos, Burgos, SPAIN

**P40****Relative permittivities of N,N-dimethylacetamide + N-propylpropan-1-amine, + N-butylbutan-1-amine, + butan-1-amine, or + hexan-1-amine systems at several temperatures**

Hevia Fernando<sup>1</sup>, Cobos Ana<sup>1</sup>, González Juan Antonio<sup>1</sup>, García de la Fuente Isaías<sup>1</sup>, Alonso-Tristán Cristina<sup>2</sup>

<sup>1</sup>Universidad de Valladolid, Valladolid, SPAIN; <sup>2</sup>Universidad de Burgos, Burgos, SPAIN

**P41****Orientational effects in mixtures of organic carbonates with alkanes or 1-alkanols**

Hevia Fernando<sup>1</sup>, González Juan Antonio<sup>1</sup>, Alonso-Tristán Cristina<sup>2</sup>, García de la Fuente Isaías<sup>1</sup>, Cobos José Carlos<sup>1</sup>

<sup>1</sup>Universidad de Valladolid, Valladolid, SPAIN; <sup>2</sup>Universidad de Burgos, Burgos, SPAIN

**P42****Thermodynamics of search process**

Pal Arnab<sup>1</sup>

<sup>1</sup>Technion Israel Institute of Technology, Schulich Faculty of Chemistry, Haifa, ISRAEL

**P43****Rayleigh-Bénard convection in the generalized Oberbeck-Boussinesq system**

Barna Imre Ferenc<sup>1</sup>, Pocsai Mihály András<sup>1</sup>, Lökös Sándor<sup>2</sup>, Mátyás László<sup>3</sup>

<sup>1</sup>Wigner RCP of the HAS, Department of Plasmaphysics, Budapest, HUNGARY; <sup>2</sup>Eötvös Loránd University, Department of Atomic Physics, Budapest, HUNGARY; <sup>3</sup>Sapientia University, Department of Bioengineering, Miercurea Ciuc, ROMANIA

**P44****Thermo-Hygro-Mechanics (THM) from different aspects**

Szekeres Andras<sup>1</sup>, Jyoti Divya<sup>2</sup>, Aherwar Kishan<sup>2</sup>, Raza Md Tanweer<sup>1</sup>, Raport Daniel<sup>1</sup>

<sup>1</sup>Budapest University of Technology and Economics, Applied Mechanics, Budapest, HUNGARY; <sup>2</sup>Eotvos Lorand University, Science, Budapest, HUNGARY

**P45****A non-equilibrium foundation of thermodynamics**

Martinás Katalin<sup>1</sup>, Tremmel Bálint<sup>2</sup>

<sup>1</sup>Eötvös Loránd University, Department of Atomic Physics, Budapest, HUNGARY; <sup>2</sup>Roland Eötvös Physical Society, Topical Group on Thermodynamics, Budapest, HUNGARY

**P46****Thermodynamics of Lotka-Volterra dynamics**

Ván Peter<sup>1</sup>, Ciancio Armando<sup>2</sup>

<sup>1</sup>MTA Wigner RCP, Theoretical Phys., Budapest, HUNGARY; <sup>2</sup>University of Messina, Department of Biomedical and Dental Sciences and Morphofunctional Imaging, Messina, ITALY

**P47****Tetrad-Effect as a Tool for Assessment of Thermodynamic Properties of Lanthanide Compounds**

Vassiliev Valery Pierre<sup>1</sup>, Lysenko Valery A.<sup>1</sup>

<sup>1</sup>Lomonosov Moscow State University, Chemical Department, Moscow, RUSSIA

**P48**

**A topological interpolation method with the entropy map**

Emőke Imre<sup>1</sup>, Vijay P. Singh<sup>2</sup>

<sup>1</sup>*Óbuda University Kandó Kálmán Faculty of Electrical Engineering, Budapest, HUNGARY*, <sup>2</sup>*Water Management & Hydrological Science, Texas A&M University, USA*

**P49**

**Preliminary study on the relationship between statistical entropy coordinates and the mechanical behaviour of granular materials (real experiments)**

Negar Rahemi, Wiebke Baille, Tom Schanz

Bochum University, Germany

Emőke Imre<sup>1</sup>, Csaba Király<sup>2</sup>, Kálmán Rajkai<sup>3</sup>, Kecskés Gábor<sup>2</sup>, Stephen Fityus<sup>4</sup>, Lőrincz János<sup>5</sup>, Vijay P. Singh<sup>6</sup>

<sup>1</sup>*Obudai Egyetem*, <sup>2</sup>*Szent István Egyetem*, <sup>3</sup>*MTA ATK TAKI*, <sup>4</sup>*University of Newcastle, Australia*, <sup>5</sup>*BME*, <sup>6</sup>*Water Management & Hydrological Science, Texas A&M University, USA*

**P50**

**The use of soil grading entropy as a measure of soil texture maturity**

Stephen Fityus<sup>1</sup>, Emoke Imre<sup>2</sup>, Tony Wells<sup>1</sup>

<sup>1</sup>*University of Newcastle, Australia*, <sup>2</sup>*Obudai Egyetem, Hungary*

**P51**

**Grading entropy and BREAKAGE of Granular Matter**

Emőke Imre<sup>1</sup>, Phong Q Trang<sup>2</sup>, Stephen Fityus<sup>3</sup>, Francesca Casini<sup>4</sup>, Giulia Guida<sup>5</sup>, János Lőrincz<sup>2</sup>

<sup>1</sup>*Obudai Egyetem, Budapest, HUNGARY*, <sup>2</sup>*BME, Budapest, HUNGARY*, <sup>3</sup>*University of Newcastle, AUSTRALIA*, <sup>4</sup>*Università di Roma Tor Vergata, Roma, ITALY*, <sup>5</sup>*Università Niccolò Cusano, Roma, ITALY*