

UNIVERSITY OF PARDUBICE
Faculty of Chemical Technology
Institute of Energetic Materials
CZ-532 10 Pardubice
<http://www.ntrem.com>

PROGRAM

of the twelfth Seminar

**„NEW TRENDS IN RESEARCH OF ENERGETIC
MATERIALS“**



NTREM 2009

held at the University of Pardubice

Pardubice, the Czech Republic

April 1st - 3rd, 2009

*intended as a meeting of students, postgraduate students, university teachers and
young research and development workers, with interest in energetic materials*

12TH INTERNATIONAL SEMINAR
“NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS”
[http:// www.ntrem.com](http://www.ntrem.com)

is supported by:

Office of Naval Research Global, Middlesex, UK (conference grant)
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Austin Detonator, Vsetin, CR
Explosia, Pardubice, CR
Indet Safety Systems, Vsetin, CR, a member of Nippon Kayaku group
STV Group, Prague, CR
Faculty of Chemical Technology, University of Pardubice, CR
OZM Research, Bliznovice, CR
BORGATA, Prague, CR

The twelfth consecutive seminar on new trends in research of energetic materials (NTREM) is intended to be a world meeting of *young* people and university teachers working in the fields of teaching, research, development, processing, analyzing and application of all kinds of energetic materials. This seminar also covers explosions in gaseous, dispersed and condensed systems. . It is not aimed only at the exchange of professional information but also at creating a pleasant meeting where young specialists from different countries have the opportunity to meet and gain personal contacts.

Papers should not only describe research work itself, but should also demonstrate awareness of the context and background for the research. The papers presented at this meeting will be quoted in the **Chemical Abstracts**.

The seminar is organized by staff members of the Institute of Energetic Materials University of Pardubice and in accordance with the tradition of previous meetings will take place at the University Hall.

The official language of the seminar is **English** and all contributions shall be presented and written exclusively in the English language.

Registration fee: *Students and young researchers* free of charge, *other* free of charge, voluntary donation of €100 to help co-sponsor the seminar would be greatly appreciated.

Passports and visas: the visitors from most countries outside EU need valid passport and visa when entering Czech Republic. Please contact the Czech Embassy or consulate in your country for more information (Czech Republic is a part of Schengen territory from Jan. 1st, 2008).

Registration: via web form should be done before the end of March 20th, 2009. The registration of participants at the University Hall will take place:

Tuesday, March 31st 15:00 – 19:00

Wednesday, April 1st 7:30 – 10:00

Proceedings of the presented contributions will be prepared by the organizers of the seminar by the date of its opening; price of the proceedings will be 3500.- CZK (i. e. ~ \$160) printed version and 500.- CZK (i. e. ~\$23) CD version – the prices are valid at the time of the seminar. The Proceedings will be provided to the main authors free of charge.

Please, monitor the Web sites [http:// www.ntrem.com](http://www.ntrem.com) for updates

Chairman of the Seminar:

Prof. Svatopluk Zeman, D.Sc. (*IEM, FCT, University of Pardubice*)

Scientific Committee:

Chairman of the Committee:

Dr. Adam Cumming (*DSTL, Sevenoaks, UK*)

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Prof. Valerii P. Sinditskii	(<i>Mendeleev Univ. of Chem. Technol., Moscow</i>)
Dr. Muhamed Suceca	(<i>Brodarski Inst., Zagreb, Croatia</i>)
Assoc. Prof. Pavel Vavra	(<i>IEM, FCT, Univ. of Pardubice, CR</i>)
Dr. Woodward Waesche	(<i>SAIC, Gainesville, USA</i>)

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Dr. Pavel Valenta	(<i>Austin Detonator, Vsetin, CR</i>)
Dr. Iva Ulbrichova	(<i>Dean Office, FCT, University of Pardubice, CR</i>)

Organizing committee of NTREM
Institute of Energetic Materials
University of Pardubice
532 10 Pardubice

CZECH REPUBLIC, European Union

Phone: (+420) 46 603 8023
Fax: (+420) 46 603 8024
E-mail: seminar@ntrem.com

Affiliated activities:

The first meeting of the *SCIENTIFIC COMMITTEE* together with the Editorial Board of the *CENTRAL EUROPEAN JOURNAL OF ENERGETIC MATERIALS* will be carried out on Tuesday, **March 31st, 2009**, at 18:00 in the **Pension & Restaurant BIRDIE** (see map). The second meeting of scientific committee will take place on Thursday, **April 2nd, 2009** – see page 13.

In the case of participants interest it is possible to organize a visit of the Institute of Energetic Materials (IEM). A friendly get-together for seminar participants will be arranged at **Pardubice's Castle** on April 2nd, 2009 – see page 13.

Lecture program of the 12th NTREM – Wednesday April 1st

08:40 **Opening of Speech** Tomas Wagner
vice-dean of the Faculty of Chemical Technology

1. Session

Chairman: Woodward Waesche
SAIC, Gainesville, USA

09:00 Adam Cumming (invited lecture)
Energetics Department, DSTL, Fort Halstead, Sevenoaks, UK
Lessons Learned through Research Collaboration – A View over 20 Years. page 6

09:30 Thomas Klapoetke (invited lecture)
Ludwig-Maximilian University of Munich, Munich, Germany
Environmental Aspects in the Research of Energetic Materials. page 39

10:00 Joerg Stierstorfer; Thomas M. Klapoetke; Stefan Sproll; Franz Martin
Ludwig-Maximilian University of Munich, Munich, Germany
Azidotetrazoles - Promising Energetic Materials or Waste of Time? page 327

10:20 Thomas M. Klapoetke; Carles Miro Sabate
Ludwig-Maximilian University of Munich, Munich, Germany
Azole-based energetic materials: Advances in nitrogen-rich chemistry. page 172

10:40 – 11:00 Coffee break

11:00 Anian Nieder; Thomas M. Klapoetke; Burkhard Krumm; Reinhold Tacke; Dennis Troegel
Ludwig-Maximilian University of Munich, Munich, Germany
A Study of Sila-Explosives and their Characteristics compared to the Carbon Analogues. page 262

11:20 Jae-Kyeong Kim; Jin-Hwan An; Hyoun-Soo Kim; Kee-Kahb Koo
Sogang University, Seoul, South Korea
Crystallization of 1,1-diamino-2,2-dinitroethylene by Drowning-out. page 166

11:40 Stefan Ek; Nikolaj Latypov; Gregoire Herve; Guy Jacob
Swedish Defence Research Agency (FOI), Tumba, Sweden
Synthesis of Di- and Trinitropyrazoles. page 494

12:00 Veera Boddu; Krishnaiah Abburi, Reddy Damavarapu
U.S. Army Engineer Research and Development Center, CERL, Champaign, USA
A Simple Antisolvent Phase Separation Process for Purification of RDX. page 64

12:20 - 14:00 LUNCH BREAK

2. Session

Chairman: Prof. Thomas Klapoetke
Ludwig-Maximilian University of Munich, Germany

- 14:00 Scott Shackelford (invited lecture) *in not in Proceedings*
Air Force Research Lab., AFRL/PRSP, Edwards AFB, CA, USA
Heterocyclic Salt Synthesis and Rational Properties Tailoring.
- 14:30 Yuan-jie Shu; Yajun Luo; Ming Yin ; Junliang Du; Xinfeng Wang; Yang Zhou
China Academy of Engineering Physics, Mianyang, China
Experimental and Theoretical Studies on Structure-Properties of some Important Energetic Materials. *page 316*
- 14:50 Manfred A. Bohn
Fraunhofer-Institut fuer Chemische Technologie (ICT), Pfingsttal, Germany
Contribution to Clarify Recently Described Unexpected Behaviour of 2-Nitro-N-NO-Alkylanilines. *is not in Proceedings*
- 15:10 Stanislaw Cudzilo; Waldemar Trzcinski; Wojciech Kicinski
Military University of Technology, Warsaw, Poland
Preparation and Characterization of Resorcinol-Formaldehyde Gels Impregnated with Ammonium Chlorate(VII) and Nitrate(V). *page 98*
- 15:30 – 15:50 Coffee break**
- 15:50 Reddy Damavarapu
ARDEC; Picatinny, Dover, NJ, USA
Novel Melt Cast Energetic Ingredients. *page 109*
- 16:10 Laurence Jeuniau; Michel H. Lefebvre; Pierre Guillaume
Royal Military Academy, Bruxelles, Belgium
Ageing of a Spherical and a Flattened Propellant. *page 153*
- 16:30 Sara Cerri; Manfred A. Bohn; Klaus Menke; Luciano Galfetti
Fraunhofer-Institut fuer Chemische Technologie (ICT), Pfingsttal, Germany
Ageing Behaviour of HTPB based Rocket Propellant Formulations. *is not in Proceedings*
- 16:50 Maciej Miszczak; Jacek Borkowski; Henryk Terenowski
Military Institute of Armament Technology, Zielonka, Poland
An analysis of Test Methods on Physicochemical Properties of Solid Rocket Propellants on the Basis of Polish Standards. *page 241*
- 17:10 Junxia Cheng
Institute of Applied Physics and Computational Mathematics, Beijing, China
Study on Mechanical of Properties of Plasticity Explosive and Influenced by Temperature and Time. *page 146*

LECTURE PROGRAM OF THE 12TH NTREM – Thursday April 2nd

3. Session – sponsored by Office of Naval Research Global

Chairman: Ruth Doherty
Dept. of Homeland Security, Washington, USA

Co-chairman: Hans Pasman
Texas A&M University, College Station, TX, USA

- 08:40 Hans Pasman *(invited lecture)* page 44
Mary Kay O'Connor Process Safety Center, Texas A&M University TX, USA
Practical Safety Concepts: Structured Thinking Conditional for Optimum EM Work.
- 09:10 Svetlana Kazakova, Georgii Kozak, Anna Kuznetsova *(invited lecture)* page 32
Mendelejev University of Chemical Technology, Moscow, Russia
Training Film to Laboratory Practical Work of Students on Theory of Burning and Explosion.
- 09:30 Xiaomian Hu, Junxia Cheng, Hao Pan, Kun Yang
Institute of Applied Physics and Computational Mathematics, Beijing, China
Numerical Simulation of Non-ideal Detonation of Condensed Explosives. page 137
- 09:50 Andrzej Paplinski
Military University of Technology, Warsaw, Poland
An Investigation of the Influence of Inter-Phase Mechanism on Detonation Wave Structure. page 283
- 10:10 – 10:30 Coffee break**
- 10:30 Matthew Price; Ang How-Ghee
Nanyang Technological University, Energetics Research Institute, Singapore
Modeling Improvised Explosive Materials: Peroxides and Non-Ideal Mixtures. page 293
- 10:50 Viacheslav Egorshv; Valery Sinditskii; Sergei Smirnov; Evgeny Glinkovsky; V. Kuzmin
Mendelejev University of Chemical Technology, Moscow, Russia
A Comparative Study on Cyclic Acetone Peroxide. page 115
- 11:10 Sara Wallin; Anna Pettersson
Swedish Defence Research Agency, Tumba, Sweden
Standoff Explosives Detection Technologies - An Overview. page 351
- 11:30 Colin Pulham; David Millar; Iain Oswald; William Marshall; Duncan Francis; Adam Cumming
The University of Edinburgh, Edinburgh, UK
High-Pressure Structural Studies of Energetic Materials. page 304
- 11:50 Khachatur A. Arutyunyan; Yuri M. Burov; Lyudmila V. Pletneva; Valentin D. Tshepilov
Institute of Problems of Chemical Physics RAS, Chernogolovka, Russia
The Energetically Aspects of the Physical and Chemical Processes in Conditions -High Pressure + Shift. page 393

12:10 – 14:00 LUNCH BREAK

4. Session – Poster program – see on page 8

Lecture program of the 12th NTREM – Friday April 3rd

5. Session

Chairman: Adam Cumming
DSTL Sevenoaks, UK

- 09:00 Manfred Held (invited lecture) page 12
TDW, Schrobenhausen, Germany
Blast Load Diagnostic .
- 09:30 Marius Valeriu Cirmaci; Doru Adrian Goga, Rotairu Traian
Military Technical Academy, Bucharest, Romania
Shock Waves Generated by the Firing of Small Caliber Weapon Systems. page 90
- 09:50 Dmitry Meerov; Dmitry Ivanov; Konstantin Monogarov; Nikita Muravyev; Alla Pivkina;
Yurii Frolov
Semenov Institute of Chemical Physics, Russian Academy of Science, Moscow, Russia
Mechanical Activation of Al/MoO₃ Thermite as a Component of Energetic Condensed Systems to Increase its Efficiency. page 230
- 10:10 Nikita Muravyev; Yurii Frolov; Alla Pivkina; Konstantin Monogarov; Dmitry Ivanov;
Dmitry Meerov
Semenov Institute of Chemical Physics Russian Academy of Science, Moscow, Russia
Combustion of Energetic Systems Based on HMX and Aluminum: Influence of Particle Size and Mixing Technology. page 249
- 10:30 – 10:50 Coffee break**
- 10:50 Hans-Jürgen Fahl
Bundeswehr Technical Center for Weapons and Ammunition, Meppen, Germany
The Validation of the Explosive Fumes Dynamics in Rooms. page 126
- 11:10 Alexander Lukin
Southern Branch of the Russian State Hydro-Meteorological University of Saint-Petersburg, Tuapse, Russia
Phenomenon of the Waves of Negative Erosion and Ballistic Efficiency of the High-Loading-Density Solid Propulsion System. page 203
- 11:30 Jan Paca; Martin Halecky; Tereza Hudcova; Evguenii Kozliak
Institute of Chemical Technology, Prague, CR
Aerobic Biodegradation of 2,4-Dinitrotoluene in a Continuous Packed Bed Reactor and Effect of 4-Nitrotoluene Presence. page 277

11:50 - 12:20 CLOSING REMARKS including AWARDING OF PRIZES

POSTER PROGRAM OF THE 12TH NTREM – Thursday April 2nd

4. Session

Chairman: Svatopluk Zeman
University of Pardubice, CR

Posters should be hung on Thursday, **April 2nd**, before 10:30. Special poster sessions will take place on Thursday (April 2nd) from 14:00 up to 17:00 h. During this time authors should be present for discussion at the posters.

- P.1 Thomas M. Klapoetke; Burkhard Krumm; Mathias Scherr; Franz Xaver Steemann
Ludwig-Maximilian University of Munich, Munich, Germany
Preparation and Properties of Energetic Trimethylamine Derivatives. *page 579*
- P.2 Alexander A. Gidaspov; Vladimir V. Bakharev; Elena V. Velikanova; Igor V. Tselinsky
Samara State Technical University, Samara, Russia
The fluoration of Dinitromethyl-1,3,5-triazine Salts with Xenon Difluoride. *page 539*
- P.3 Vladimir V. Bakharev; Alexander A. Gidaspov; Vladimir A. Zalomlenkov; Eugene A. Kozhevnikov
Samara State Technical University, Samara, Russia
The Investigation of the Interaction of 2,4,6-Trichloro-1,3,5-triazine with Salts of gem-Dinitrocompounds. *page 409*
- P.4 Stefan Sproll; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
Bistetrazolyltetrazenes as Energetic, Nitrogen Rich Compounds. *page 802*
- P.5 Franziska Betzler; Thomas M. Klapoetke; Stefan Sproll
Ludwig-Maximilian University of Munich, Munich, Germany
New Energetic Polymers Based on Cellulose. *page 451*
- P.6 Alessandro Contini; Anthony Bellamy; Matt Andrews
Cranfield University, Shrivenham, UK
On the Reaction of NTO (3-Nitro-1,2,4-triazol-5-one) and FOX-7 (1,1-Diamino-2,2-dinitroethene) with Alkyl Isocyanates. *page 473*
- P.7 Vaclav Svachoucek; Petra Svachouckova; Ladislav Velehradsky; Karel Ventura
Defence Standardization, Codification and Govt. Quality Assurance Authority, Prague, CR
The Dependence of Composition Gun Shot Residues on the Gun Barrel Length.
page 844
- P.8 Joerg Stierstorfer; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
A Green Replacement of Lead Azide: Calcium 5-Nitriminotetrazolate. *page 825*
- P.9 Michael Goebel; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
Replacement of RDX and HMX: BTAT, a Structural Isomer of CL-20. *page 542*
- P.10 Michael Göbel; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
Replacement of TNT: BTHC, an Insensitive Melt Castable Explosive with Positive Oxygen Balance. *page 548*
- P.11 Thomas M. Klapoetke, Martin Kuzman; Norbert Mayr; Stephanie Seel
Ludwig-Maximilian University of Munich, Munich, Germany
Smokeless Pyrotechnical Colorants Based On 1,2,4-Oxadiazol-5-onate Salts. *page 596*

- P.12 Thomas M. Klapoetke; Martin H. Kunzmann; Norbert T. Mayr
Ludwig-Maximilian University of Munich, Munich, Germany
Insensitive Explosives and Propellants Based On 1,2,4-Oxadiazol Derivatives. *page 581*
- P.13 Zdenek Jalovy, Jaromir Foud
Institute of Energetic Materials, University of Pardubice, CR
Reaction of Ethylenedinitramine with Dihalogenmethanes. *page 563*
- P.14 Vera Hartdegen; Thomas M. Klapoetke; Stefan Sproll
Ludwig-Maximilian University of Munich, Munich, Germany
New Energetic Materials Based on 2H-tetrazole-5-carboxylic Acid. *page 556*
- P.15 Konstantin Karaghiosoff; Thomas Klapoetke; Hedrik Radies;
Ludwig-Maximilian University of Munich, Munich, Germany
1-(1,1-Dihydroperfluoroalkyl)-5-perfluoroalkyl Tetrazoles. *page 567*
- P.16 Thomas M. Klapoetke; Carles Miro Sabate;
Ludwig-Maximilian University of Munich, Munich, Germany
Energetic Salts of Low Symmetry Methylated 5-Aminotetrazoles. *page 608*
- P.17 Thomas M. Klapoetke; Carles Miro Sabate; Matthias Rasp
Ludwig-Maximilian University of Munich, Munich, Germany
Pyrotechnics, Propellants and Explosives: Bridged 5-Nitrotetrazole Derivatives.
page 627
- P.18 Thomas M. Klapoetke; Joerg Stierstorfer; Karina R. Tarantik
Ludwig-Maximilian University of Munich, Munich, Germany
Salts of 1-(2-Chloroethyl)-5-Nitriminotetrazole - New Candidates for Coloring Agents in Pyrotechnic Compositions. *page 647*
- P.19 Franz A. Martin; Joerg Stierstorfer; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
Derivatives of Nitrated 1,5-Diaminotetrazole - A new Class of Energetic Materials.
- P.20 Franz A. Martin, Margaret-J. Crawford, Thomas M. Klapoetke; Konstantin Karaghiosoff
Ludwig-Maximilian University of Munich, Munich, Germany
Novel Nitrogen Rich Salts Based on 4,5-Dicyano-1,2,3-triazole. *page 741*
- P.21 Shunguan Zhu
Nanjing University of Science and Technology, Nanjing, China
Eutectic Compound of Perchloric Amine Salt. *page 911*
- P.22 Alex Penger; Thomas Altenburg; Susanne Scheutzow; Lukas Vejs; Thomas M. Klapoetke
Ludwig-Maximilian University of Munich, Munich, Germany
Solid Nitroglycerine Analoga With Improved Energetic Properties. *page 777*
- P.23 Gennady Rudakov
Mendelejev University of Chemical Technology, Moscow, Russia
Synthesis of Energetic Compounds from 5-Azido-2,2-dimethyl-5-nitro-1,3-dioxane.
page 793
- P.24 Alexander A. Kushtaev; Nikolaj V. Yudin; Vitold L. Zbarsky
Mendelejev University of Chemical Technology, Moscow, Russia
The Nitration Peculiarity of 6-Hydroxy-2-methylpyrimidine-4(3H)-one to 6-Hydroxy-2-methyl-5-nitropyrimidine-4(3H)-one. *page 696*
- P.25 Junwoo Kim; Jae-Kyeong Kim; Hyoun-Soo Kim; Kee-Kahb Koo
Sogang University, Seoul, South Korea
Crystallization of RDX with an Internal Seeding Technique for Reduction of Solvent Inclusion. *page 575*

- P.26 Radovan Skacel; Jan Zigmund; Pavel Marecek; Pavel Prchal; Martin Karnet; Jan Skladal
Explosia a.s., Pardubice-Semtin, CR
Precipitated RDX and TAGN Particles for Use in Propellants. page 798
- P.27 Anthony Bellamy; Peter Golding; Mary Mahon
Cranfield University, Shrivenham, UK
Crystal Habit of LLM-105 (2,6-Diamino-3,5-dinitropyrazine 1-oxide). page 442
- P.28 Anthony J. Bellamy
Cranfield University, Shrivenham, UK
Identification of α -Chloro-2,2',4,4',6,6'-hexanitrobibenzyl as an Impurity in Hexanitrostilbene (HNS). page 433
- P.29 Alexander M. Astachov; Alexander D. Vasiliev; Andrew A. Erashov; Ludmila A. Kruglyakova; Rudolf S. Stepanov
Siberian State Technological University, Krasnoyarsk, Russia
The Crystal and Molecular Structure of 3-Nitro-1-trinitromethyl-1,2,4-triazole.
page 405
- P.30 Michael Herrmann; Ulrich Foerter-Barth; Paul Bernd Kempa
Fraunhofer Institut Chemische Technologie, Pfinztal, Germany
Size/strain Diffraction Peak Broadening of the Energetic Materials RDX, ADN and FOX-7. page 560
- P.31 Alexander M. Astachov; Vitaliy A. Revenko; Eduard S. Buka
Siberian State Technological University, Krasnoyarsk, Russia
Impact Sensitivity of Nitrimines. page 396
- P.32 Denis Kokovikhin; Alexander Dubovik
Mendelejev University of Chemical Technology, Moscow, Russia
Characteristics of Sensitivity to Impact Ammonium Perchlorate and Its Composition with Al and Al₂O₃. page 396
- P.33 Rudolf S. Stepanov; Ludmila A. Kruglyakova; Alexander M. Astachov
Siberian State Technological University, Krasnoyarsk, Russia
Influence of Structure on the Thermal Decomposition Rate of Formals of Polynitroalcohols in Liquid Phase. page 819
- P.34 Ivona Fiamengo; Muhamed Suceska; Sanja Matecic Musanic
Brodarski institut-Marine Research & Advanced Technologies, Zagreb, Croatia
Applicability of Thermal Methods for Determination of Nitroglycerin Content in Double Based Propellants. page 526
- P.35 Muhamed Suceska; Sanko Bakija; Janos Kodvanj; Sanja Matecic Musanic ; Ivona Fiamengo; Ante Bakic
Brodarski institute-Marine Research & Advanced Technologies, Zagreb, Croatia
Study of Mechanical Properties of Rocket DB Propellant During Natural Ageing.
page 832
- P.36 Igor Kovalenko; Olexandr Kuprin
Ukrainian State University of Chemical Technology, Dnepropetrovsk, Ukraine
Features of Thermal Decomposition of Nitrate of Ammonium in Open Systems.
page 678
- P.37 Jiri Majzlik
Institute of Energetic Materials, University of Pardubice, CR
ESD Sensitivity of Fine Grade Powdered HMX – Al mixture. page 720

- P.38 Dalibor Kuhinek; Igor Zoric; Vinko Srklec
University of Zagreb, Zagreb, Croatia
Influence of the Current Pulse Shape to the Measurement of Electric Detonators Firing Impulse. *page 689*
- P.39 Yong Liu; Yuan-jie Shu, Xue-yong Liu; Ying Xiong ; Fa-chun Zhong; Yi Sun
China Academy of Engineering Physics, Mianyang, China
Fluorescence Analysis Technique of Explosive Detection. *page 195*
- P.40 Jonas Sarlauskas; Kastis Krikstopaitis; Kestutis Sekmokas; Narimantas Cenas
Institute of Biochemistry, Vilnius, Lithuania
Voltammetric Redox Behavior of High Energy Aromatic and N-Heterocyclic Nitrocompounds. *page 849*
- P.41 Edward Aluker; Alexander Krechetov; Denis Nurmukhametov; Alexander Tupitsyn
Kemerovo State University, Kemerovo, Russia
Temperature Dependencies of Laser Initiation of PETN. *page 388*
- P.42 Edward Aluker; Alexander Krechetov; Anatoliy Mitrofanov; Alexander Pashpekin; Alexander Samarov
Kemerovo State University, Kemerovo, Russia
Pre-explosive Emission of Electrons from Silver Azide. *page 384*
- P.43 Lemi Turker; Taner Atalar; Hamza Turhan
Middle East Technical University, Ankara, Turkey
Computational Investigation of Nitroglycol (EGDN), Ethylenedinitramine (EDNA) and their Sulfur Analogs (Thionitrates). *page 876*
- P.44 Jane S. Murray, Pat Lane, Michael Goebel, Thomas M. Klapoetke, Peter Politzer
Dept. of Chemistry, University of New Orleans, Louisiana, USA
Reaction Force Analysis of Nitro/Aci Tautomerization. *is not in Proceedings*
- P.45 Jakub Selesovsky; Robert Matyas
University of Pardubice, Pardubice, CR
Decomposition Kinetics of Urea Nitrate. *page 861*
- P.46 Nelly Zhokhova; Tatyana Pivina; Lyubov Maslova; Yuriy Matyushin; Alexey Zefirov
Zelinsky Institute of Organic Chemistry, Russian Academy of Sciences, Moscow, Russia
Artificial Neural Networks in Energetic Materials Enthalpy of Formation Calculations. *page 371*
- P.47 David Lempert; Geli Nechiporenko; Svetlana Soglasnova
Institute of Problems of Chemical Physics RAS, Chernogolovka, Russia
Energetic Parameters of Dinitramine Salts of High Enthalpy Polynitrous Bases. *page 701*
- P.48 Bogdan Czajka; Leszek Wachowski; Zenon Foltynowicz; Katarzyna Lipinska; Marek Lipinski; Stanislaw Tabat
Institute of Non-ferrous Metals Branch in Poznan, Poznan, Poland
The Influence of Mo, Ti and nano-Fe on Selected Properties of High Calorific Fe-KClO₄ Mixture. *page 481*
- P.49 Robert Zalewski; Tomasz Wolszakiewicz
Inst. of Machines Design Fundamentals, Warsaw Univ. of Technology, Warsaw, Poland
Viscoplastic Model for Solid Propellants. *page 905*
- P.50 Tomasz Wolszakiewicz; Tomasz Gawor
Institute of Industrial Organic Chemistry, Warsaw, Poland
Application of Optic Inspection in Solid Propellants Strength Experiments. *page 898*

- P.51 Svetlozar Ganey; Radi Ganey
University of Chemical Technology and Metallurgy, Sofia, Bulgaria
Increasing the Nitrogen Content of Single-Base Propellant Elements. *page 535*
- P.52 Traian Rotariu; Doru A. Goga; Sorin R. Esanu; Tudor V. Tiganescu,; Marius V. Cirmaci
Military Technical Academy, Bucharest, Romania
Study Regarding Effectiveness of Stabilizer Revival Process on Old Artillery Propellants. Part 2. *part 787*
- P.53 Zvonimir Ester
Faculty of mining geology and petroleum engineering, Zagreb, Croatia
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- P.54 Kozak George; Starshinov Alexander; Litovka Olga, Kazakova Svetlana
Mendeleev University of Chemical Technology, Moscow, Russia
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- P.55 Andrzej Maranda; Piotr Koslik; Zenon Wilk
Military University of Technology, Warsaw, Poland
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- P.56 Mario Dobrilovic
Faculty of mining geology and petroleum engineering, Zagreb, Croatia
Linear Shaped Charge with Emulsion Explosive. *page 487*
- P.57 Anna Veprikova; Vladimir Annikov; Vladimir Trunin; Alex Apolenis; Vlada Raikova
Mendeleev University of Chemical Technology, Moscow, Russia
Detonation Parameters of Watergel Aluminum-Containing Explosives. *page 890*
- P.58 Tamer A. Azem Elshenawy
Egyptian Armed Forces, Cairo, Egypt
Explosive Properties Effect on the Performance Characteristics of Shaped Charges.
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- P.59 Piotr Koślik; Zenon Wilk; Waldemar Witkowski
Institute of Industrial Organic Chemistry, Warsaw, Poland
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- P.60 Sameh El Basuony; Hosam Mostafa; Mohamed Seleet
Egyptian Armed Forces, Cairo, Egypt
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- P.61 Andrzej Orzechowski, Lucjan Staszewski, Dorota Powąła, Andrzej Maranda
Institute of Industrial Organic Chemistry, 6 Annapol St, 03-236 Warsaw, PL
4,10-Dinitro-2,6,8,12-Tetraoxa-4,10-Diaza-tetracyclo [5,5,0^{5,9},0^{3,11}] Dodecane (TEX) as a Component of Plastic bonded explosives. *page 771*
- P.62 Dorota Powąła, Andrzej Orzechowski, Andrzej Papliński, Andrzej Maranda
Institute of Industrial Organic Chemistry, 6 Annapol St, 03-236 Warsaw, PL
Some Properties of PBX Containing FOX-7. *page 781*
- P.63 Mu Li, Chuan-Jun Yan
School of Power and Energy, Northwestern Polytechnical Univ., Xi'an, China
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P.64 Alan Catovic; Berko Zecevic; Jasmin Terzic
*University of Sarajevo, Mechanical Engineering Faculty, Defense Technologies
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**Analysis of Terminal Effectiveness for Several Types of HE Projectiles and Impact
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17:00 The second meeting of Scientific Committee (University Hall)

18:00 - 22:00 EVENING PROGRAM (at Pardubice's Castle)
<http://www.vcm.cz/virtual/zamek.html>

18:00-18:40 Visit of the expositions:

“Bohemian glass” <http://www.vcm.cz/virtual/ceske-sklo.html>

“Historical weapons” <http://www.vcm.cz/virtual/vr/zb/1/flash/index.html>

“Collection of Toys” <http://www.vcm.cz/virtual/vr/hr/1/flash/index.html>

“Numismatics Collection” <http://www.vcm.cz/virtual/penize-v-cechach.html>

“Picture-Postcards Collection” <http://www.vcm.cz/virtual/expozice-sbirky-pohlednic-orbis-pictus-lapidarium.html>

“Countryside of the Eastern Bohemia” <http://www.vcm.cz/virtual/priroda-vychodniho-polabi.html>

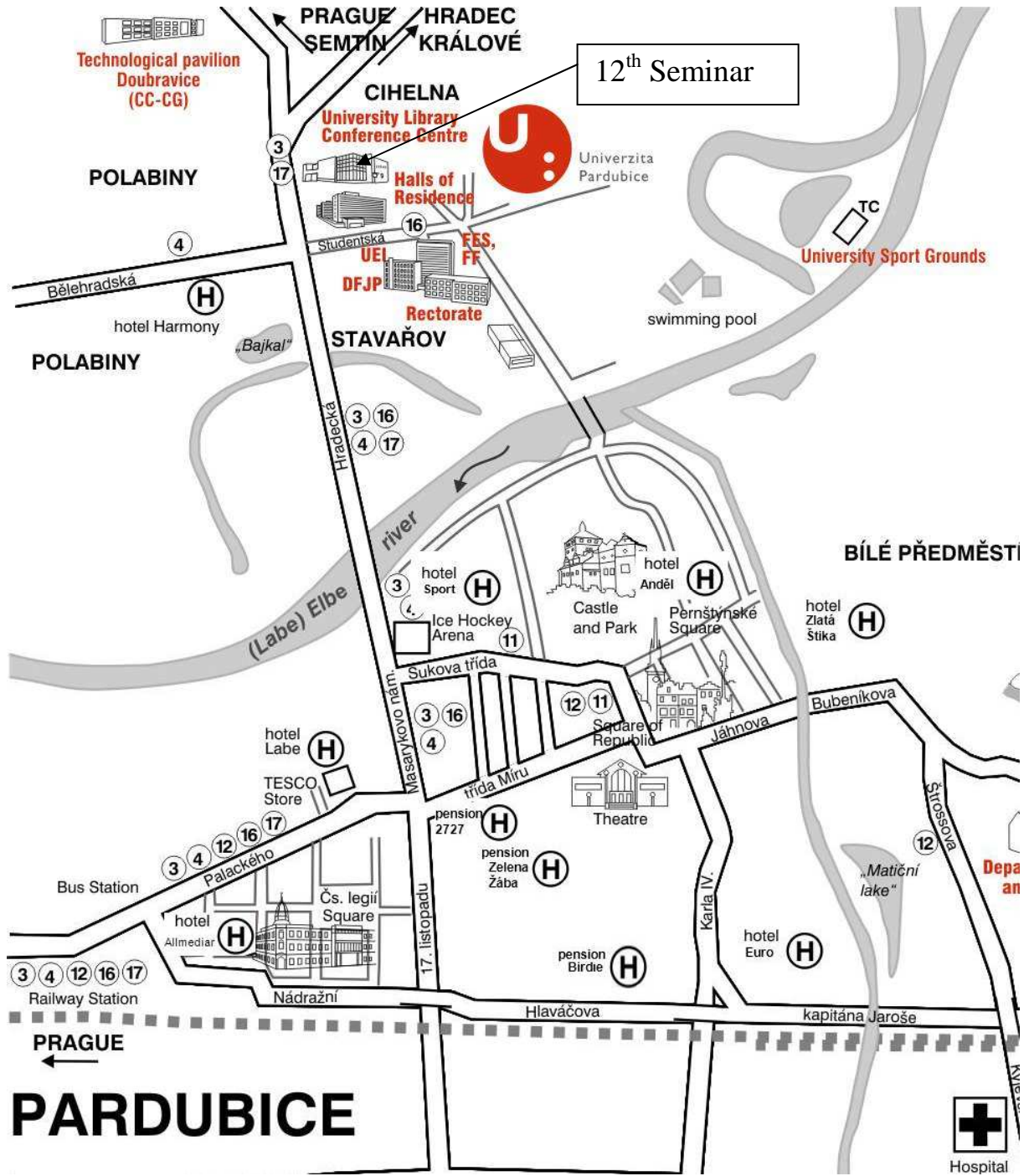
18:50-22:00 A friendly get-together in the Knight Hall

<http://www.vcm.cz/virtual/vr/ryt/1/flash/index.html>

<http://www.vcm.cz/virtual/vr/ryt/2/flash/index.html>

<http://www.vcm.cz/virtual/vr/ryt/3/flash/index.html>

12th SEMINAR - orientation map – town PARDUBICE



Accommodation (*orientation prices as of Jan. 31st, 2009*): based on experience from previous Seminars, the participants will have to make reservation themselves. The accommodation is possible in variety of hotels in the center of Pardubice.

Hotel LABE:

phone: 00420 466 535 359
fax: 00420 466 535 358
E-mail: rezervace@hotellabe.cz
approximate prices/night:
1400.- CZK (\$65) single room
1900.- CZK (\$88) one person apartments
approx. 10 min. walk from the University Hall

Hotel ZLATA STIKA:

phone: 00420 46 6613478
fax: 00420 46 6052130
E-mail: zlata@stika.cz
approximate prices/night:
2500-3500 CZK (\$116-\$162) apartments
1500-1900 CZK (\$70-\$88) single room
1700-2100 CZK (\$79-\$97) double room
approx. 25 min. walk from the University Hall

Hotel SPORT:

phone: 00420 46 651 22 21
fax: 00420 46 651 20 62
approximate prices/night:
885.- CZK (\$41) single room
1090.- CZK (\$50) double room
approx. 10 min. walk from the University Hall

Pension 2727:

phone: 00420 466 615 400
fax: 00420 466 612 451
E-mail: penzion2727@seznam.cz
approximate prices/night:
1090.- CZK (\$50) single room
1308.- CZK (\$60) double room
1308.-CZK (\$60) apartments for one person
approx. 20 min. walk from the University Hall

Hotel ALLMEDIAR:

phone: 00420 466 536 063
fax: 00420 466 536 070
E-mail: info@allmediar.cz
approximate prices/night:
1200.- CZK (\$55) single room
1300.- CZK (\$60) double room
2100.-CZK (\$97) apartments for one person
approx. 25 min. walk from the University Hall

Hotel HARMONY:

phone/fax: 00420 466 435 020
00420 466 435 025
E-mail: hotel@harmony-pce.cz
recepce@harmony-pce.cz
approximate prices/night:
1000.- CZK (\$467) single room
1200.- CZK (\$55) double room
1300.-CZK (\$60) apartments for two person
approx. 3 min. walk from the University Hall

Hotel U ZLATEHO ANDELA:

phone: 00420 466 535 6 56
fax: 00420 466 511 5 75
E-mail: hotelzlandel@seznam.cz
approximate prices/night:
1100.- CZK (\$51) single room
1300.- 2400 CZK (\$60-\$111) apartments/person
approx. 25 min. walk from the University Hall

Pension BIRDIE

phone: 00420 466 053 255
fax: 00420 466 053 256
E-mail: info@birdie.cz
approximate prices/night:
1300.-CZK (\$60) single room
1600.-CZK (\$74) double room
1500.-CZK (\$69) apartments for one person
approx. 30 min. walk from the University Hall

Hotel EURO:

phone: 00420 466 414 255
fax: 00420 466 414 259
E-mail: info@hoteleuro.cz
approximate prices/night:
1900.- CZK (\$88) single room
2100.- CZK (\$97) double room
approx. 30 min. walk from the University Hall

Pension ZELENA ZABA (*Green Frog*):

phone: 00420 466 616 016
fax: 00420 466 616 016
E-mail: info@zelenazaba.cz
approximate prices/night:
1050.- CZK (\$49) single room
1250.- CZK (\$58) double room
1300.-CZK (\$60) apartments for one person
approx. 25 min. walk from the University Hall

Note: *price of one meal in the town is about 200.-CZK (i. e. ~\$11.50)*