UNIVERSITY OF PARDUBICE
Faculty of Chemical Technology
Department of Theory & Technology of Explosives
CZ-532 10 Pardubice

FINAL PROGRAM

of the eighth Seminar

„NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS“

held at University of Pardubice
and devoted to **eighty five years**
of education in the field of Science & Technology of Explosives
in the former Czechoslovakia

Pardubice, the Czech Republic

April 19- 21, 2005

intended as a meeting of students, postgraduate students, university teachers and young research and development workers concerned from the whole world

8TH INTERNATIONAL SEMINAR
"NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS"

is supported by:

U. S. Army Int. Technology Center (Atlantic) - European Research Office in London
Defence Science & Technology Lab. (DSTL), Sevenoaks, U.K.,
Austin Detonator, Inc., Vsetín,
Indet Safety Systems, Inc., Vsetín, a member of Nippon Kayaku group,
Explosia, Ltd., Pardubice,
CZ Team, Prague
Faculty of Chemical Technology, University of Pardubice,
OZM, Ltd., Hrochův Týnec

Chairman of the Seminar:

Prof. Svatopluk Zeman, D.Sc.

Scientific Committee:

Chairman of the Committee:

Dr. Adam Cumming	(*DSTL, Sevenoaks, U.K.*)

Members of the Committee:

Prof. Ang How-Ghee	*(Nanyang Technological University, Singapore)*
Dr. Anthony J. Bellamy	(*Cranfield Univ, UK*)
Dr. Stanislaw Cudzilo	(*Military Univ. Technol., Warsaw, Poland*)
Prof. Mikhail A. Ilyushin	(*St. Petersburg State Inst. of Technol., Russia*)
Prof. Thomas Klapoetke	(*Ludwig-Maximilians-Universität Műnchen*)
Prof. Michel Lefevre	(*Royal Military Academy, Belgium*)
Prof. František Ludvík	(*Military Academy Brno, Czech Rep.*)
Prof. Andrzej Maranda	(*Military Univ. Technol., Warsaw, Poland*)
Prof. Hans J. Pasman	(*Delft Univ., The Netherland*)
Assoc. Prof. Yuanjie SHU	(*Inst. Chem. Materials, CAEP, Mian Yang, PRC*)
Dr. Muhamed Sućeska	(*Brodarski Inst., Zagreb, Croatia*)
Prof. Igor V. Tselinskii	(*St. Petersburg State Inst. of Technol., Russia*)
Prof. Waldemar A. Trzciński	(*Military Univ. Technol., Warsaw, Poland*)
Dr. Allen Tulius	(*Applied Res. Assoc., Inc. USA*)
Assoc. Prof. Pavel Vávra	(*Univ. of Pardubice, Czech Rep.*)
Prof. Heming XIAO	(*Nanjing Univ. of Sci. & Technol., PRC*)
Dr. Fred Volk	(*ICT Pfinztal, Germany*)
Prof. Ian G. Wallace	(*Cranfield Univ, UK*)
Dr. Woodward Waesche	*(Office of Naval Res. Int. Field Office, USA)*

Organizing Committee

Chairman of the Committee:

Dr. Jiří Vágenknecht	(*Univ. Pardubice*)

Members of the Committee:

Assoc. Prof. Ladislav Lehký	(*Explosia, Ltd., Pardubice*)
Dr. Jan Jakubko	(*Indet Safety Systems, Vsetín*)
Dr. Marcela Jungová	(*DTTX, Univ. of Pardubice*)
Dr. Pavel Valenta	(*Austin Detonator, Vsetín*)
Dr. Iva Ulbrichová	(*Dean Office, University of Pardubice*)

GENERAL INFORMATION

Seminar Venue:

Seminar will take place at a **University Hall**, which is a part of University Library *(see enclosed map*).

Lunches:

There is a possibility to bespeak lunches at University cafeteria one day in advance – prices are from 50 to 90.- CZK.
There are also restaurants within the walking distance from meeting hall.

Official Language:

The official working language will be **English.**

Registration fees:

No fees will be charged.

Proceedings:

The Proceedings will be provided to the members of scientific committee and main authors free of charge.

Other participants can buy corresponding Proceedings at the beginning of the Seminar.

Price of the Proceedings of 8th seminar will be 1000,- CZK (i.e. Eur 34.-, or $45.-) printed version and 350,- CZK (i. e. Eur 12.-, or $16.-) for electronic version (CD). Limited amount of printed version of Proceedings from the 4th, 5th and 6th seminars is also available for 800,- CZK (i. e. Eur 27.-, or $36.-) and from 7th Seminar for 1600.-CZK (i. e. Eur 54.-, or $71.50).

Presentation of papers:

Data, slide and sheet projectors, overhead projector and devices for Power Point presentation will be available during oral presentation.
Tables (*1980 mm high and 1000 mm wide*) will be available for poster presentation.

Registration of participants:

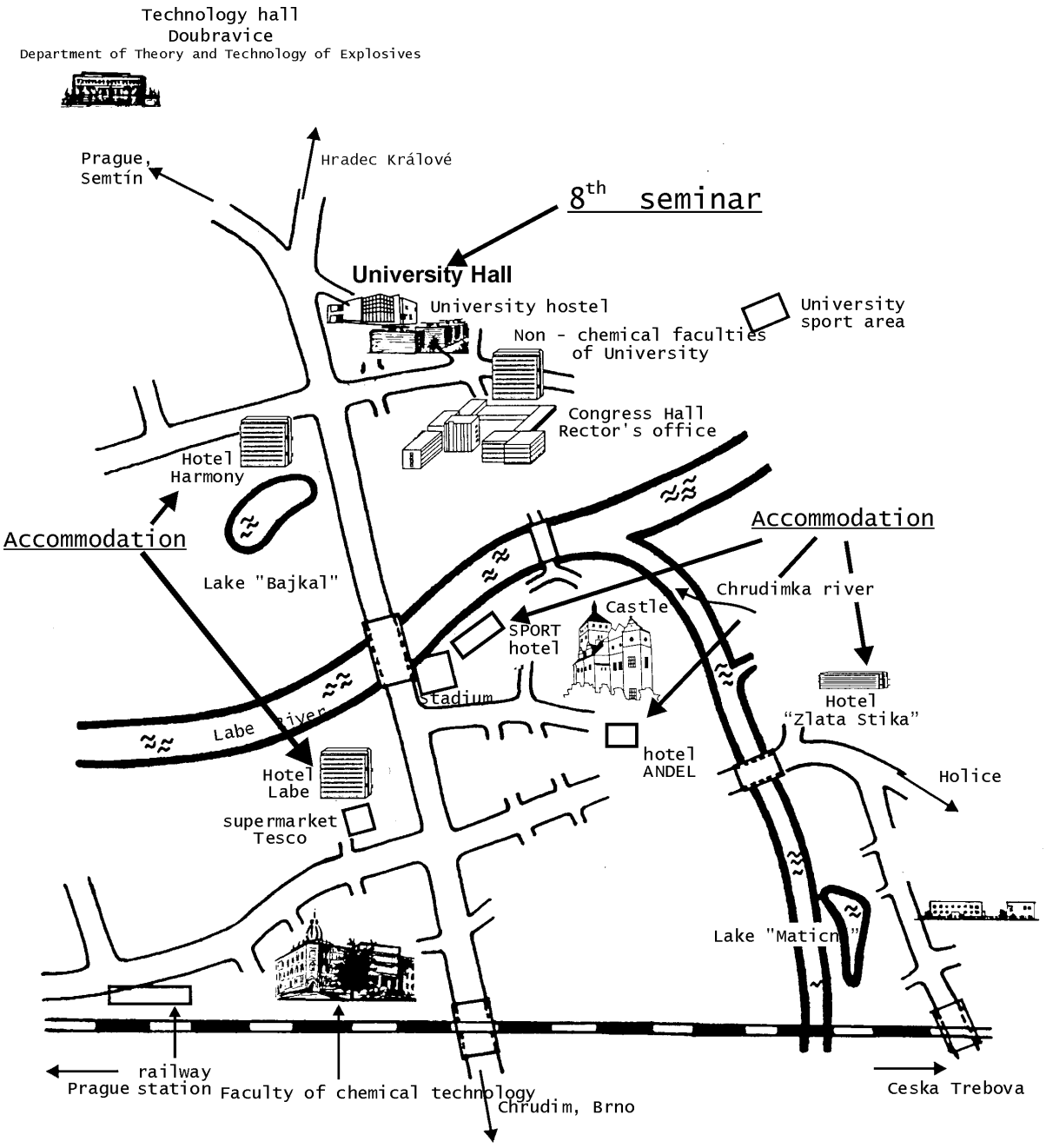
Registration of participants will take place at the University Hall:
April 18th 4:00PM - 7:00 PM
April 19th 7:30AM - 10:00 AM

Special Program:

A friendly get-together for foreign participants and for workers and co-workers of Dept. of Theory & Technology of Explosives will be arranged at **Pardubice's Castle** on April 20th (page 15).

In the case of participants interest it is possible to organize a visit of the Department of Theory and Technology of Explosives.

8th SEMINAR - orientation map – town PARDUBICE



LECTURE PROGRAM – Tuesday April 19th

08:40 **Opening of Seminar** – speech of Prof. Ladislav Tichý, D.Sc.,
Vice-dean of the Faculty of Chem. Technology

1. Session

Chairman: Dr. Ronald W. Armstrong
University of Maryland, USA

09:00 Hans J. Pasman, Richard Bouma, Nikolaos Zarzalis and Max Weis (*invited lecture*)
Delft University of Technology, The Netherlands
SOME NOTES ON THE FUNDAMENTALS OF ENERGETIC MATERIALS INITIATION TOWARDS A "UNIVERSAL SENSITIVITY CHARACTERISTICS"

09:35 Mikhail I. Iliyushin, and Igor V. Tselinskii
St.-Petersburg State Institute of Technology, Russia
THE INFLUENCE OF THE STRUCTURE OF THE SALTS OF AZOLES UPON THE PROCESSES OF THEIR THERMAL AND LASER INITIATION

09:55 Miroslav Pospíšil, and Pavel Vávra
Dept. of Chemical Physics, Charles University, Prague, Czecvh Rep.
DECOMPOSITION OF ENERGETIC MATERIALS INVESTIGATED BY MOLECULAR SIMULATIONS: HNIW, TNA

10:15 – 10:40 Coffee break

10:40 He-Ming XIAO, Zhao-xu CHEN, and X. XU, (*invited lecture*)
Nanjing University of Science & Technology, Nanjing, P. R. China
A QUANTUM CHEMICAL STUDY ON THERMOLYSIS INITIATION MECHANISM AND IMPACT SENSITIVITY OF ENERGETIC MATERIALS

11:15 Richard Wild
Diehl BGT Defence GmbH & Co.KG, Nonnweiler, Germany
MAIN CHARGE INITIATION OF INSENSITIVE MUNITION BY "UNPLANED STIMULI". FAST COOK-OFF RESISTANCE OF PRESSED PBX

11:35 Yuanjie SHU,
Institute of Chemical Materials, China Academy of Engineering Physics, Mian Yang
THEORETICAL STUDY ON THE STRUCTURE-PROPERTIES OF SOME HIGH DENSITY ENERGETIC MATERIALS

11:55 Ji-Jun XIAO, Xiufang MA, Wei ZHU, Yucheng HUANG and Heming XIAO
Nanjing University of Science & Technology, Nanjing, P. R. China
MOLECULAR DYNAMIC SIMULATION ON MECHANICAL PROPERTIES OF TATB/FLUORINE-POLYMER PBX

12:15 G. Fisher, G. Holl, Thomas M. Klapötke, P. Mayer and J. J. Weigand
Ludwig-Maximilian Umiversity of Munich, D-81377 Munich, Germany
PROPERTIES OF HIGHLY FRICTION SENSITIVE DERIVATIVE OF 1,5-DIAMINO-1*H*-TETRAZOLE (DAT): 1,5-DIAMINO-4-METHYLTETRAZOLIUM DINITRAMIDE

12:35 - 14:00 LUNCH BREAK

2. Session

Chairman: Dr. Woodward Waesche
ONRIFO, USA

14:00 Thomas D. Sewell (*invited lecture*)
Los Alamos National Laboratory, Los Alamos, New Mexico, USA
ATOMISTIC STUDIES OF FUNDAMENTAL PROPERTIES AND PROCESSES IN ENERGETIC MATERIALS: RELEVANCE TO MESOSCALE INITIATION PHENOMENA

14:35 Manfred A. Bohn, Manuela Dörich, Jasmin Aniol, Heike Pontius and Peter Gerber
Fraunhofer Institut für Chemische Technologie, ICT, Pfinztal, Cermany
REACTIVITY BETWEEN ε–CL-20-GAP AND β–HMX-GAP INVESTIGATED BY MASS LOSS, ADIABATIC SELF HEATING AND DYNAMIC MECHANICAL ANALYSIS

14:55 Sreekumar Pisharath and Ang How-Ghee
Nanyang Technological Ubiversity, Singapore
DECOMPOSITION KINETICS OF GAP BINDER IN THE PRESENCE OF AN ENERGETIC COMPONENT

15:15 Laurence Jeunieau, Michel H. Lefebvre and P. Guollaume
Royal Military Academy, Brussels, Belgium
CHARACTERIZATION OF DETERRED PROPELLANTS BY CLOSED VESSEL TESTS: IMPORTANCE OF THE IGNITION METHOD

15:35 – 16:00 Coffee break

16:00 Ronald W. Armstrong (*invited lecture*)
University of Maryland, USA
DISLOCATION – ASSISTED INITIATION OF ENERGETIC MATERIALS

16:35 Guy Jacobs, Stéphane Bézanet, Rolf Tryman, Patrick Goede, Henric Öestmark
SME Research Centre, Vert le Petit, France
FOI, Swedish Defence Res. Agency, Tumba, Sweden
CALCULATIONS OF DENSITIES AND HEATS OF FORMATION OF ENERGETIC MOLECULES FOR THE USE IN THERMOCHEMICAL CODES

16:55 Jonas Šarlaukas, Ašura Nesmeikaité-Čénienė, Lina Misevičienė, Žilvinas Anusevičius and Narimantas Čénas
Institute of Biochemistry, Vilnius, Lithuania
MAMMALIAN CELL CYTOTOXICITY OF NITROAROMATIC EXPLOSIVES AND THEIR DEGRADATION PRODUCTS: THE ROLE OF OXIDATIVE STRESS

17:15 Zbygnew Chylek, Stanislaw Cudziło, J. Bladek, and S. Pietrzyk,
Military University of Technology, Warsaw, Poland
OPTIMIZATION OF 1,1-DIAMINO-2,2-DINITROETHENE SYNTHESIS

17:35 Stefan Ek, Carina Eldsäter, Patrick Goede, Erik Holmgren, Rolf Tryman, Nikolay Latypov, Yang Guo Ying Raimond, and Lee Yiew Wang
FOI, Swedish Defence Res. Agency, Tumba, Sweden
DSOP Natl. Labs., Singaspore 118230
SYNTHESIS AND CHARACTERIZATION OF 2,2-DINITRO-1,3-PROPANEDIOL-BASED PLASTICISERS.

LECTURE PROGRAM – Wednesday April 20th

3. Session

Chairman: Prof. Michel Lefbvre
Royal Military Academy, Belgium

08:40 Fred Volk, (will be prersented by Dr. Manfred Bohn) (*invited lecture*)
Fraunhofer Institut für Chemische Technologie, ICT, Pfinztal, Cermany
HIGHLIGHTS OF STABILITY RESEARCH IN THE FIRST DOZEN JAN HANSSON SYMPOSIA IN SWEDEN 1967-2001

09:10 Stephan Wilker, Gerhard Holl, Gabriele Pantel and Uldis Ticmanis
WIWEB Ast Heimerzheim, Swistal, Germany
FROM BINARY MIXTURES TO COMPLETE AMMUNITION COMPATIBILITY – A WHOLE CARTRIDGE IN ONE TAM AMPOULE

09:30 Anthony J. Bellamy, Alessandro E. Contini, Peter Golding and Stephen J. Trussell
Cranfield University, Royal Military College, Shrivenham, U.K.
BOMB CALORIMETRIC STUDY OF A SERIES OF ENERGETIC LINEAR POLYPHOSPHAZENES

09:50 Allen Tulis, (*invited lecture*)
Applied Research Associates, Inc., Glen Ellyn, USA
HIGH-TEMPERATURE PROPELLANT TORCH SYSTEM FOR NON-DESTRUCTIVE NEUTRALIZATION OF EXPLOSIVES: EMPHASIS ON PHYSICAL-CHEMICAL ASPECTS IN THE CASE OF TNT

10:20 – 10:40 Coffee break

10:40 Janusz Wrzesinski, Jadwiga Poplawska and Andrzej Kolaczkowski, (*invited lecture*)
Wroclaw University of Technology, Wroclaw, Poland
LABILITY OF AMMONIUM NITRATE EMULSIONS TO SPONTANEOUS DECOMPOSITION

11:10 Chunxu LU
School of Chem. Engineering, Nanjing Univ.y of Sci. & Technol., Nanjing 210094, P.R. China
THE APPLICATION OF A SURFACE ACTIVE THEORY TO ENERGETIC MATERIALS RESEARCH ON EXPANSION AMMONIUM NITRATE EXPLOSIVES

11:30 Aleksander N. Lukin
Institute of Applied Mechanics, Ural Branch of Russian Acad. of Sciences, Izhevsk
CONCEPT OF THE SPATIAL-PERIODIC MICRO-STRUCTURES EXCITATIONS AT THE EVAPORATED ENERGETIC MATERIALS TRANSIENT COMBUSTION AS A WAY FOR IMPROVEMENT OF THE SOLID PROPULSION TECHNOLOGIES

11:50 Aleksander Gromov, Ulrich Förter-Barth and Ulrich Tiepel,
Tomsk Polytechinc University, Tomsk, Russia
Fraunhofer Institut für Chemische Technologie, ICT, Pfinztal, Cermany
STUDY OF NON-ISOTHERMAL NITRIDATION OF ALUMINIUM NANOPOWDERS (ANP) PASSIVATED/COATED BY NON-OXIDE LAYERS

12:10 Jan Bladek, S. Piertrzyk, S. Cudziło and Z. Chylek,
Military University of Technology, Warsaw, Poland
TLC ANALYSIS OF DADNE AND SOME INTERMEDIATE PRODUCTS ITS SYNTHESIS

12:30 – 14:00 LUNCH BREAK

***4. Session* - Poster Session**

Chairman: Prof. Svatopluk Zema
University of Pardubice, Czech Rep.

14:00 – 17:00 POSTER SESSION

(16:00-17:00 *The second meeting of the Scientific Committee in the University Hall*)

18:00 - 22:00 EVENING PROGRAM (*at Pardubice's Castle)*

LECTURE PROGRAM – Thursday April 21st

5. Session

Chairman: Dr. Adam Cumming
DSTL Sevenoaks, U.K.

09:00 Svatopluk Zeman,
University of Pardubice, CZ-532 10 Pardubice, Czech Rep.
THE STUDY OF CHEMICAL MICRO-MECHANISM OF NITRAMINES INITIATION WITH UTILIZATION OF ^{15}A NMR CHEMICAL SHIFTS

09:30 Wincenty Skupiński and Maciej Duda
Industrial Chemistry Research Institute, PL- 01-793 Warsaw, Poland
Warsaw University of Technology, Pl- 00-664 Warsaw, Poland
THERMAL STABILITY OF THE IMPURITIES AND THE POLYMORPHS OF HNIW

09:50 Ulrich Tiepel, and Ulrich Förter-Narth,
Fraunhofer Institut für Chemische Technologie, ICT, Pfinztal, Cermany
PRODUCT DESIGN OF INSENSITIVE PARTICULATE ENERGETIC MATERIALS

10:10 A. G. Anshits, N. N. Anshits, Andrey A. Deribas, S. M. Kharakhanov, N. S. Kasatkina, A. V. Plastinin, A. Yu. Reshetnjak, and V. V. Silvestrov
Lavretiyev Institute of Hydrodynamics, Siberian Branch of Russian Academy of Sci., Novosibirsk, Russia
DETONATION VELOCITY OF EMULSION EXPLOSIVES WITH CENOSPHERES

10:30 Vasile Titica
Military Technical Academy, Bucharest, Romania
REGARDING THE DETERMINATION OF EXPONENT FROM BURNING RATE LAW OF POWDER USING THE CLOSED BOMB DATA

10:50 - 11:20 Coffee break

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

POSTER PROGRAM

Posters should be hanged out on Tuesday, ***April 19th***, before 12:00. A special poster sessions will take place on Wednesday (***April 20th***) from 14:00 up to17:00 h. During this time authors should be present for discussion at the posters.

P 1 Ian G Wallace
Cranfield University, Shrivenham Campus, Swindon SN6 8LA, UK
DEVELOPING AND MAINTAINING SKILLS IN THE EXPLOSIVES SECTOR

P 2 Yuanjie Shu, Chaoyang Zhang, Xinfeng Wang, Xiaodong
Inst. of Chem. Materials CAEP, 621900, Mianyang, Sichuan, P. R. China
THEORETICAL STUDIES ON THE PROPERTIES OF SOME ENERGETIC MATERIALS

P 3 Waldemar A. Trzciński, Marcin Kutkiewicz, and Leszek Szymańczyk
Military University of Technology, Kaliskiego 2, 00 908 Warsaw, Poland
THE USE OF THE GAP TEST TO INVESTIGATE THE SHOCK TO DETONATION TRANSITION IN LOW-SENSITIVITY EXPLOSIVES PART I – EXPERIMENTAL APPROACH

P 4 Waldemar A. Trzciński
Military University of Technology, Kaliskiego 2, 00 908 Warsaw, Poland
THE USE OF THE GAP TEST TO INVESTIGATE THE SHOCK TO DETONATION TRANSITION IN LOW-SENSITIVITY EXPLOSIVES PART I –NUMERICAL SIMULATION

P 5 Svatopluk Zeman and Robert Varga
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
STUDY OF THERMAL AND DETONATION REACTIVITIES OF THE MIXTURES CONTAINING 1,3,5-TRINITROSO-1,3,5-TRIAZINANE (TMTA)

P 6 Rudolf S. Stepanov, Ludmila A. Kruglyakova, and Alexander M. Astachov
Siberian State Technological University , 660 049 Krasnoyarsk, prosp. Mira, 82, Russia
STRUCTURE-KINETIC LAWS OF THERMAL DECOMPOSITION OF SIX-MEMBERED CYCLIC N-NITRAMINES

P 7 Xue-Hai Ju and He-Ming Xiao
Dept. of Chem., Nanjing University of Science and Technology, Nanjing 210094, P. R. China
INTERMOLECULAR INTERACTIONS OF ENERGETIC COMPOUNDS IN GASEOUS AND SOLID STATES

P 8 Jakub Šelešovský, and Jiří Pachmáň
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
ON THE ESTIMATION OF COOKOFF TEMPERATURE USING FEM

P 9 Mialn Klusáček and Marcela Jungová
Universioty of Pardubice, CZ-532 10 Pardubice, Czech Rep.
DEVELOPMENT OF TESTING METHOD FOR DETERMINATION INITIATION STRENGTH OF DETONATORS BY MEASUREMENT IMPULSE CHAMBER

P 10 Igor Zorić and Dalibor Kuhinek
Fac. of Mining, Geology & Petroleum Engineering, University of Zagreb, Croatia
NON STANDARD METHODS IN TESTING FIRING CURRENT OF ELECTRIC DETONATORS

P 11 Jiří Majzlík, and Jiří Strnad
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
EFFICIENCY OF APPARATUS FOR TESTING SENSITIVITY OF EM TO ELECTROSTATIC DISCHARGE

P 12 Miloslav Krupka
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
INTRODUCTION TO THERMAL STABILITY STUDIES OF NITROBENZENE AND NITROPHENOL DERIVATIVES IN SULFURIC ACID

P 13 Robert Matyáš
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
INFLUENCE OF OIL ON SENSITIVITY AND THERMAL STABILITY OF TRIACETONE TRIPEROXIDE AND HEXAMETHYLENETRIPEROXIDE DIAMINE

P 14 Michael A. Bohn, Anton Hammerl, Kate Harris, and Thomas M. Klapötke
Fraunhofer Institut Chemische Technologie, Pfinztal, Germany
INTERACTIONS BETWEEN THE NITRAMINES RDX, HMX AND CL20 WITH THE ENERGETIC BINDER GAP

P 15 Adam Zakrzewski, and Zenon Wilk
Institute of Industrial Organic Chemistry, Branch Krupski Mlyn, Poland
EFFECTS OF THE REACTION OF THE LINER CONTAINING THE MAGNESIUM AND ALUMINUM WITH WATER AND WATER SOLUTION OF AMMONIUM NITRATE

P 16 O.V. Kostitsyn, B.G. Loboiko, V.P. Filin, A.V. Vershinin, A.A. Nikulin, E.B. Smirnov, and S.N. Lyubyatinsky
Zababakhin Russian Federal Nuclear Centre – VNIITF, Snezhinsk, Chelyabinsk region, 4 56770 Russia
PROPAGATION OF DETONATION IN CYLINDRICAL LOW-SENSITIVE HE SAMPLE

P 17 N.V. Kozak , G.D. Kozak , and Zhou Lin
Mendeleev Univ. of Chemical Technology, Miusskaya sq. 9, Moscow A-47, Russia
THE SPIN-PULSATING REGIME OF DETONATION IN SOLID AND LIQUID EXPLOSIVES

P 18 Jiří Vágenknecht, Vladislav Adamík and Zbyněk Akštein
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
CONTRIBUTION TO STUDIES OF DETONATION OF A CURVED CYLINDRICAL CHARGE

P 19 N. P. Taibinov, B. G. Loboiko, V. P. Filin, O. V. Kostitsyn, V. V. Shaposhnikov, S. N. Lubyatinsky, E. B. Smirnov, A. B. Syrtsov, A. V. Vershinin, and A. A. Nikulin
Zababakhin Russian Federal Nuclear Centre - VNIITF, Snezhinsk, Chelyabinsk region, 456770 Russia
RECORDING OF PARTICLE VELOCITY PROFILES IN SHOCK AND DETONATION WAVES BY ELECTROMAGNETIC TECHNIQUE

P 20 Vladislav Adamík and Zenon Wilk
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
Inst. of Industrial Organic Chemistry, Branch Krupski Mlyn, Poland
NUMERICAL SIMULATIONS OF OIL-WELL PERFORATOR USING 3D LAGRANGIAN LS-DYNA CODE

P 21 Pavel Prchal, Jan Zimund and Jindřich Veverka
Res. Inst. of Industrial Chemistry, Explosia, Inc., CZ-532 10 Pardubice, Czech Rep.
COMPARISON OF MEASURED AND CALCULATED PARAMETERS OF PROPELLANTS

P 22 E. I. Aleshkina and G. D. Kozak
Mendeleev Univ. of Chemical Technology, Miusskaya sq. 9, Moscow A-47, Russia
PARAMETERS OF HEAT EXPLOSION AND DETONATION OF HEXANITROMANNITE AND NITROTHREEAZOLONE

P 23 Sanja Matečić Mušanić*, Muhamed Sućeska*, Maša Rajić Linarić*, and Sanko Bakija**
** Brodarski Institute, Av. V. Holjevca 20, 10 020 Zagreb, Croatia*
*** Ministry of Defence, Bauerova 33, 10000 Zagreb, Croatia*
APPLICATION OF TIME-TEMPERATURE SUPERPOSITION PRINCIPLES TO PREDICTION OF MECHANICAL PROPERTIES OF DOUBLE BASED ROCKET PROPELLANTS

P 24 Maša Rajić-Linarić, Muhamed Sućeska and Sanja Matetić-Mušanić
Brodarski Institute, Av. V. Holjevca 20, 10 020 Zagreb, Croatia
CHANGES OF SOME THERMOPHYSICAL PROPERTIES OF NITROCELLULOSE PROPELLANTS DURING ACCELERATED AGING

P 25 Martina Chovancova, Peter Ocko, Alzbeta Pechova, and Milos Lazar
Military Technical and Testing Institute, Zahorie, SK-905 24 Senica, Slovak Republic
RESEARCH OF ARTIFICIAL AGEING SUITABLE CONDITIONS DURING THE INVESTIGATION OF PROPELLANTS LIFETIME

P 26 Yukihiro Tsunezumi, Miyako Akiyoshi, Hiroshi Miya, and Hidetsugu Nakamura
Dept. of Appl. Science for Integrated System Engineering, Kyusyu Institute of Technology, Sensui-machi, Tobata-ku, Kitakyusyu-shi 804-8550, Japan
AGING BEHAVIOR OF PROPELLANTS

P 27 Jiří Pachmáň and Jakub Šelešovský
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
CHARACTERIZATION OF COMPOSITE SOLID ROCKET PROPELLANT USING DMA

P 28 Richard Kuracina
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
COMPARISON OF SMOKELESS NITROCELLULOSE POWDER PRODUCTION ACCIDENTS IN EXPLOSIA WITH THE WORLD'S ACCIDENTS DATABASE

P 29 Abdelrazak Mouloud
Laboratoire des Systèmes Pyrotechniques, UER de Chimie Appliquée, B.P 17, EMP, Bordj-El-Bahri, 16111 Algiers, Algeria
EFFECT OF ALUMINIUM POWDER ON THE THERMAL AND ENERGETIC PROPERTIES OF COMPOSITE ROCKET PROPELLANT BASED EPOXY RESIN

P 30 Martin Šimáček, Vít Kuttelwascher and Petr Stojan
University of Defense, Faculty of Military Technol., CZ-602 00 Brno, Czech Rep.
INFLUENCE OF VELOCITY OF GAS FLUX GOING TO EROSIVE BURNING PROCESS INSIDE OF COMBUSTION CHAMBER

P 31 Józef Paszula, Andrzej Maranda, Andrzej Papliński,Barbara Gołąbek, and Johann Kasperski
Military University of Technology, Kaliskiego 2, 00 908 Warsaw, Poland
AN ANALYSIS OF BLAST WAVES PARAMETERS AND UNDERWATER EXPLOSION TEST OF EMULSION EXPLOSIVES AND DYNAMITES

P 32 Mario Dobrilović, Ester Zvonimir, and Branimir Janković
Fac. of Mining, Geology & Petroleum Engineering, University of Zagreb, Croatia
MEASUREMENT IN BLAST HOLE STEM AND INFLUENCE OF STEMMING MATERIAL ON BLASTING QUALITY

P 33 Mario Dobrilović, Zvonimir Ester, and Trpimir Kujundžić
Fac. of Mining, Geology & Petroleum Engineering, University of Zagreb, Croatia
MEASUREMENT OF SHOCK WAVE FORCE IN SHOCK TUBE WITH INDIRECT METHODS

P 34 Stjepan Žganec, Zvonimir Ester and Mario Dobrilović
Minervo, Ltd., Ljubljana, Slovenia
Fac. of Mining, Geology & Petroleum Engineering, University of Zagreb, Croatia
COMPARISON OF CONTINUOUS AND DISCONTINUOUS METHOD OF DETONATION VELOCITY MEASUREMENT IN MINING DRILLS (VOD)

P 35 Anthony J. Bellamy
Cranfield University, Royal Military College of Sci., Shrivenham, Swindon SN6 8LA, U.K.
STUDIES ON THE HYDRODENITRATION BY TIN (II) CHLORIDE OF POLYNITRO-HEXAAZAISOWURTZITANES

P 36 Anthony J. Bellamy, Luigi Cassioli and Alessandro E. Contini
Cranfield University, Royal Military College of Sci., Shrivenham, Swindon SN6 8LA, U.K.
SYNTHESIS AND PROPERTIES OF SALTS OF 3,5-DIAMINOPICRIC ACID

P 37 Anthony J. Bellamy, Alistair MacCuish and Peter Golding
Cranfield University, Royal Military College of Sci., Shrivenham, Swindon SN6 8LA, U.K.
THE USE OF THE TRIFLUOROACETYL GROUP TO PROTECT NH AND OH GROUPS DURING NITROLYSIS REACTIONS

P 38 Alexander M. Astachov, Alexander D. Vasiliev, Maxim S. Molokeev, Andrew A. Nefedov, Ludmila A. Kruglyakova, Vitaliy A. Revenko,and Eduard S. Buka
Siberian State Technological University, Prosp. Mira 82, 660049 Krasnoyarsk, Russia
2-NITRIMINO-5-NITROHEXAHYDRO-1,3,5-TRIAZINE: STRUCTURE AND PROPERTIES

P 39 Moritz v. Denffer, Gerhard Heeb, Thomas M. Klapötke, Gernot Kramer, Gunnar Spieß, and Jan M. Welch
University of Munich, Butenandtstr. 5-13 (D), D-81377 Munich, Germany
IMPROVED SYNTHESIS AND X-RAY STRUCTURE OF 5-AMINOTETRAZOLIUM NITRATE

P 40 Zdeněk Jalový, Pavel Mareček, Kamil Dudek, Ondřej Fohl, Nikolaj V. Latypov, Stefan Ek, and Martin Johansson
Dept. of Theory & Technology of Explosives, University of Pardubice, Czech Rep.
Explosia, a.s., CZ-532 17 Pardubice-Semtín, Czech Rep.
FOI, Swedish Defence Research Agency, S-147 25 Tumba, Sweden
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Institute of Industrial Organic Chemistry, 03-236 Warszawa, Poland
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Institute of Industrial Organic Chemistry, 03-236 Warszawa, Poland
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Pr 2 Galina A. Shraiber, and Vlada M. Raikova
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COMPARISON OF EXPLOSIVE PARAMETERS OF PEROXIDES AND OF NITROCOMPOUNDS

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Pr 5 Hu Bingcheng, Lü Chunxu, Liu Zuliang
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Pr 9 Dmitriy V. Pleshakov
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ESTIMATION OF THE CONDENSATION PROBABILITY OF SUPERSATURATED NITROGLYCERINE VAPOR DURING MANUFACTURING OF ENERGETIC MATERIALS

Pr 10 P. Paunovic, O. Popovski, M. Tasev, R. Smileski, and S. Hadzi Jordanov
Fac. of Techno. & Metallurgy, Univ. "Sts. Cyril and Methodius", Skopje, Rep. Macedonia
SOPHISTICATED ELECTROCATALYSTS FOR ECONOMICAL PRODUCTION OF HYDROGEN. PART A: STRUCTURAL CHARACTERIZATION

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SOPHISTICATED ELECTROCATALYSTS FOR ECONOMICAL PRODUCTION OF HYDROGEN. PART B: ELECTROCHEMICAL CHARACTERIZATION

Pr 12 Eugeniya A. Bakhmatova* , Tatyana V. Petukhova**, Vyacheslav L. Korolev*, Tatyana S. Pivina*, and Victor P. Ivshin**
** Zelinsky Institute of Organic Chemistry, Russian Acad. of Sci., Moscow 119991, RUSSIA*
*** Mari State University, Lenin square 1, Yoshkar-Ola 424000, Mari El Republic, RUSSIA*
COMPUTER SIMULATION OF NITRO-1,2,4-TRIAZOLES DECOMPOSITION REACTIONS

Pr 13 Bin SUN
Dept. of Safety Defence, Zhejiang Police Institue, Hangzhou 310018 , China
APPLICATION OF THE METHOD OF GRAY INTERRELATION ANALYZING TO ASSESS HAZARD OF GAS EXPLOSION ACCIDENTS

Pr 14 Ernst-Christian Koch and Karl P. Rudolf
Diehl BGT Defence GmbH & Co. KG, D-90552 Röthenbach a d Pegnitz, Germany
DETONATIVE IGNITION OF METAL/FLUOROCARBON PYROLANTS *(Abstract only)*

Pr 15 L.A.Merzhievsky*, P.I.Zubkov*, K.A.Ten*, E.R.Pruuel*, L.A.Luk'yanchikov*, V.M.Titov*, B.P.Tolochko**, M.G.Fedotov**, M.R.Sharafutdinov**, M.A.Sheromov**, I.L.Jogin**, V.V.Julanov***, L.I.Shehtman***, and V.M.Aul'chenko***
* Lavrentyev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia
** Budker Institute of Nuclear Physics SB RAS, Novosibirsk, Russia
** Institute of Solid Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
INVESTIGATION OF DEFLAGRATION TO DETONATION TRANSITION IN POROUS HIGH EXPLOSIVE BY SYNCHROTRON RADIATION APPROACH *(Abstract only)*

Pr 16 Karl Rudolf
Diehl BGT Defence GmbH & Co. KG, 90552 Röthenbach, Germany
INSENSITIVE INITIATION CHAINS FOR INSENSITIVE EXPLOSIVE FILLS *(Abstract only)*

Pr 17 Rudolf S. Stepanov, Ludmila A. Kruglyakova, and Alexander M. Astachov
Siberian State Technological University, prosp. Mira, 82, Krasnoyarsk 660049, Russia
STRUCTURE KINETIC LAWS OF THERMAL DECOMPOSITION OF SIX MEMBERED CYCLIC N-NITRAMINES *(Abstract only)*

PROGRAM on Wednesday April 20th at Pardubice's Castle

18:30 – 22:00 A friendly get-together in the Knight Hall;

Accommodation: Based on previous experience accommodation reservations are not provided. The participants are recommended to make reservations in following hotels in the center of Pardubice (*see the enclosed map):*

Hotel LABE: phone: 00420 46 6535359
fax: 00420 46 6535358
E-mail: rezervace@hotellabe.cz
approximate prices/night: 1300.- CZK ($60) single room
1800.- CZK ($83/one person) apartments
approx. 15 min. walk from the University Hall

Hotel HARMONY*:* phone/fax*:* 00420 46 643 5020
00420 46 643 5025
E-mail: hotel@harmony-pce.cz
recepce@ harmony-pce.cz
approximate prices/night: 690.- CZK ($32) single room
840.- CZK ($38) double room
approx. 3 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 ($114-$160) apartments
1600.- CZK ($73) single room
1800.- CZK ($83) double room
approx. 25 min. walk from the University Hall

Hotel "U Sv. ANDELA" (Holy Angel):

phone: 00420 46 653 56 56
fax: 00420 46 651 15 75
approximate prices/night: 1000.- CZK ($46) single room
1700.- CZK ($78) apartments
approx. 25 min. walk from the University Hall

Hotel SPORTHOTEL:
phone: 00420 46 651 22 21
fax: 00420 46 651 20 62
approximate prices/night: 750.- CZK ($34) single room
880.- CZK ($40) double room
approx. 10 min. walk from the University Hall

Notes: *price of one meal is about 200.-CZK (i. e. ~$9.10)*