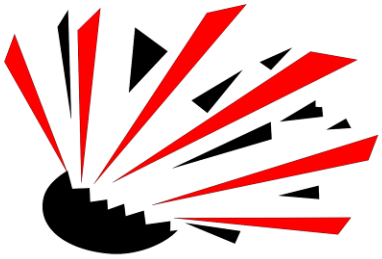
UNIVERSITY OF PARDUBICE
Faculty of Chemical Technology
Institute of Energetic Materials
CZ-532 10 Pardubice
http://www.ntrem.com

PROGRAM

(the eighth version)

of the twenty first seminar

„NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS“



NTREM 2018

held at the University of Pardubice

Pardubice, the Czech Republic

April 18th – 20th, 2018

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

21ST INTERNATIONAL SEMINAR
"NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS"
http://**www.ntrem.com**

is supported by:

Austin Detonator, Inc., Vsetín, Cech Republic
Explosia Co., Pardubice, Czech Republic
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OZM Research, Hrochův Týnec, Czech TRepublic
Office of Naval Research Global, Science & Technology, London
US Army RDECOM – Atlantic
Nicolet CZ, Prague, Czech Republic
Temperatior, Ltd., Liberec, Czech Republic
Faculty of Chemical Technology, University of Pardubice,

The twenty first consecutive seminar on new trends in research of energetic materials is intended to be a world meeting of *young* people, university teachers and specialists working in the fields of teaching, research, development, processing, analyzing and application of all kinds of energetic materials. The main focus of this year's meeting will be aimed towards *Sensitivity & Performance* but attention will also be devoted to other problems related to energetic materials. 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 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 CR. Please contact the Czech Embassy or consulate in your country for more information (CR is a part of Schengen territory).

Registration: via web form should be done before the end of April 10th, 2018. Registration of participants after this date will take place at the University Hall:

April 17th	3:00PM - 6:00 PM	*with welcome snack at University Hall*
April 18th	7:30AM - 10:00 AM	

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. ~ $140; €130) printed version and 500.- CZK (i. e. ~$ 20, € 20) 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, watch the web site http://www.ntrem.com for updates

For a large number of lectures, the lectures will take place simultaneously at University Hall No. 1 and University Hall No. 2

Chairman of the Seminar:

Prof. Svatopluk Zeman	*University of Pardubice, Czech Republic*

Chairman of the Scientific Committee:

Prof. Adam Cumming	*University of Edinburgh, United Kingdom.*

Members of the Scientific Committee:

Assoc. Prof. Alexandr Astachov	Reshetnev Siberian State Univ. of Science & Technology., *Krasnoyarsk, Russia*
Dr. Manfred A. Bohn	*Fraunhofer ICT, Pfinztal, Germany*
Prof. José A. Campos	*University of Coimbra, Portugal*
Dr. Ruth Doherty	*University of Maryland, Maryland, USA*
Prof. Michael Gozin	*University of Tel Aviv, Israel*
Prof. Thomas Klapoetke	*Ludwig-Maximilians-Universität Műnchen, Germany*
Prof. Pavel Konečný	*University of Defence, Brno, Czech Republic*
Prof. Michel Lefebvre	*Royal Military Academy, Belgium*
Dr. David Lempert	*Russian Acad. Of Sci., Chernogolovka, Russia*
Prof. Andrzej Maranda	*Military University Technol., Warsaw, Poland*
Prof. Siddapura R. Niranjana	*Gulbarga University, Kalaburagi, India*
Prof. Jimmie Oxley	*University of Rhode Island, Kingston, USA*
Prof. Vladimir Petrov	*Kazan National Research Technological University, Russia*
Prof. Tatyana S. Pivina	*Zelinsky Inst. of Organic Chemistry, Moscow, Russia*
Dr. William Proud	*Imperial College London, United Kingdom.*
Prof. Karl Rink	*University of Idaho, USA*
Prof. Muhamed Sućeska	*University of Zagreb, Zagreb, Croatia*
Prof. Traian Rotariu	*Military Technical Academy, Bucharest, Romania*
Prof. Valery Sinditskii	*Mendeleev University of Chem. Technology, Moscow, Russia*
Prof. Aleksander Smirnov	*Bakhirev State Sci. Res. Inst. of Mechan Eng. Dzerzhinsk, Russia*
Prof. Sergei Sysoliatin	*Siberian Branch of the RAS, Biysk, Russia*
Prof. Waldemar A. Trzciński	*Military University Technol., Warsaw, Poland*
Prof. Abbaraju Venkataraman	*Gulbarga University, Kalaburagi, India*
Prof. Vladimir Zarko	*Voevodski Institute of Chemical Kinetics &Combustion RAS, Novosibirsk, Russia*
Prof. Svatopluk Zeman	*University of Pardubice, Czech Republic*
Prof. Chaoyang Zhang	*Inst. Chem. Materials, CAEP, Mian Yang, China*
Prof. Jianguo Zhang	*Beijing Inst. of Technology, Beijing, China*

Organizing Committee

Chairman of the Committee:

Assoc. Prof. Jiří Pachman	*IEM, FCT, University of Pardubice, CR*

Members of the Committee:

Dr. Jakub Šelešovský	*IEM, FCT, University of Pardubice, CR*
Dr. Marcela Jungová	*IEM, FCT, University of Pardubice, CR*
Dr. Iva Ulbrichová	*Dean Office, FCT, University of Pardubice*

Organizing committee of NTREM
Institute of Energetic Materials
University of Pardubice
532 10 Pardubice
CR, European Union

Phone: (+420) 46 603 8100
Fax: (+420) 46 603 8024
E-mail: seminar@ntrem.com

Affiliated activities:

The first meeting of the ***SCIENTIFIC COMMITTEE*** will be carried out on Tuesday, **April 17th, 2018**, at 6 p.m. in **Bonté** (*across the street from Atruim Palace*) the second one on Thursday, **April 19th, 2018,** at 16:30 in the University Hall – see page 9.

A friendly get-together for NTREM participants will be arranged at **the Congress Centre in the Atrium Palace of Pardubice** (former AFI Palace on page 19) on April 19th, 2018 meeting at 18:30.

Lecture program of the 21th NTREM – Wednesday April 18th

University Hall No. 1

08:10 **Meeting of all speakers** of the first Session with Chairman of this Session.

08:20 **Opening of seminar** – speech of *representative of Univ. Pardubice*

08:30 **Organizing Committee notes** - Assoc. Prof. Jiri Pachman

1. Session

Chairman: Prof. Traian Rotariu
Military Technical Academy, Bucharest

08:40 Jiri Pachman *plenary lecture*
Inst. of Energetic Materials, Faculty of Chemical Technology, University of Pardubice
Development of performance testing at IEM

09:10 Ruth Doherty *invited lecture*
University of Maryland, Maryland, USA
Making sense of sensitivity data.

09:40 Bryce Tappan *invited lecture*
Los Alamos Natl. Lab., Los Alamos, New Mexico, USA
Exploring the effects of reactive additives in explosives: in search of higher efficiency with various energetic combinations.

10:10 Sergei Sysoliatin *invited lecture*
Siberian Branch of the Russian Academy of Sciences, Biysk, Russia
Polycyclic amines. Synthesis, property and application.

10:40 – 11:00 Coffee break

11:00 Lorand Kugyela
TÜV Rheinland Intercert Ltd., Budapest, Hungary
Performance test of small sized shaped charges.

11:20 Xiangrun Zhao
Beijing Institute of Technology, Beijing, China
Experimental studies on detonation characteristics of strip-shaped transfer charge.

11:40 Dayuan Gao, Qingguan Song, Chaoyang Zhang, Feng Zhao, Xinglong Li, Baohui Zheng, Wei Cao, Xiangli Guo, *China Academy of Engineering Physics, Mianyang, China*
Study on sensitivity and detonation property of explosive containing B/Al.

12:00 - 14:00 LUNCH BREAK

*Pictures from the **2nd Seminar NTREM** in 1999 at the nowadays Faculty of Transport, University of Pardubice:*

in the first row on the left picture Prof. Bogdan Zigmund, Dr. Witold Pagowski, Prof. Andrzej Marana, Prof. Stanislaw Cudzilo

on the right picture Prof. Svatopluk Zeman, Prof. Andrzej Maranda, Prof. Stanislaw Cudzilo

Chairman: Prof. Tatiana S. Pivina
Zelinskii Inst. of Organic Chemistry, Moscow

13:50 **Meeting of all speakers** of the second Session with Chairman of this Session.

14:00 Guijuan Fan
China Academy of Engineering Physics, Mianyang, China
A new melt-cast energetic material of 5,6-di(2-fluoro-2,2-dinitroethoxy)furazano[3,4-b]pyrazine facile synthesis, polycrystalline properties and promising performance.

14:20 Mikhail Zharkov, Svetlana Arabadzhi, Ilya Kuchurov, Sergey Zlotin,
Russian Academy of Sciences, Zelinsky Institute of Organic Chemistry, Moscow, Russia
Synthesis of nitrocompounds in compressed Freon medium.

14:40 Le Wu, Piao He, Haozheng MeiJianguo Zhang
Beijing Institute of Technology, Beijing, China
High-nitrogen 1D energetic complexes based on novel C-N linked 2, 5-ditetrazolyl-1, 3, 4-triazole (DTT).

15:00 – 15:20 Coffee break

15:20 Thomas Criton, Lionel Joucla, Guy Jacob, Emmanuel Lacôte
Laboratoire Hydrazines et Composés Energétiques Polyazotés, Lyon, France
Triazanes and their reactivity: A new trend in polynitrogen chemistry.

15:40 Thomas Reith, Thomas M. Klapötke, Burkhard Krumm
Ludwig-Maximilian University of Munich, Munich, Germany
Dinitrates of malonyl and nitraminodiacetyl hydrazides.

16:00 Nagarjuna Kommu, Balaraju Muntha, Akhila K. Sahoo
Advanced Center of Research in High Energy Materials, University of Hyderabad, India
Synthesis of nitro substituted aryl-tetrazole derivatives and energetic studies.

Prof. Manfred Held presents his lecture on April 2007 (the 10th NTREM) under the Session chairmanship by Dr. Scott A. Shackelford from the Edwards AFB, USA.

Chairman: Dr. Ruth Dohety
University of Maryland, USA

12:10 - 14:00 LUNCH BREAK

13:50 **Meeting of all speakers** of the second Session with Chairman of this Session

14:00 Junfeng Wang, Shusen Chen, Lijie Li
Beijing Institute of Technology, Beijing, China
Thermal hazard assessment of TKX-50 under adiabatic condition.

14:20 Feiyan Gong, Hu Guo, Jianhu Zhang, Chunying Shen, Congmei Lin, Shijun Liu
China Academy of Engineering Physics, Mianyang, China
Thermal explosion of a TATB-based aluminized explosive: Theoretical and experimental studies

14:40 Junqing Yang, Xuedong Gong, Jianguo Zhang
Beijing Institute of Technology, Beijing, China
Theoretical investigation on the structure and energetic performance of new high-energy nitramine explosives.

15:00 – 15:20 Coffee break

15:20 Qi-Long Yan, Pei-Jin Liu, An Ting, Michael Gozin,
Northwestern Polytechnical University, Xi'an, China
Desensitization and stabilization mechanisms of graphene on energetic transition metal complexes.

15:40 Qingguan Song, Cheng Wang, Yong Han, Dayuan Gao,
China Academy of Engineering Physics, Mianyang, China
Effect of vertical concentration gradient on globally planar detonation with detailed reaction mechanism.

16:00 Wei Li, Wei Wang, Fang Wang, Xiaomeng Fu, Aiming Pang,
Science and Technology on Aerospace Chemical Power Laboratory, Xiangyang, China
Effect of hydrogen storage alloy with PTFE in NEPE solid propellant.



Pictures from the 19th Seminar NTREM

Lecture program of the 20th NTREM – Thursday April 19th

3A. Session ***University Hall No. 1***

Chairman: Dr. Manfred A. Bohn
Fraunhofer ICT, Pfinztal, Germany

08:20 Chao Cui, Hui Ren, Xueyong Guo, Qingjie Jiao
Beijing Institute of Technology, Beijing, China
Preparation and characterization of ε-HNIW by solvent/anti-solvent recrystallization.

08:40 Vijayadarshan Panga, Venkata Viswanath Jalla, Ravindra Liladhar Raibagkar, Amarnath Gupta, Venkataraman Abbaraju
Department of Materials Science, Gulbarga University, Kalaburagi, India
Energetic – energetic cocrystallization of PETN and RDX.

09:00 Yalun Sun, Hui Ren, Qingjie Jiao
Beijing Institute of Technology, Beijing, China
Sensitivity evolution of NEPE propellant during ageing.

09:20 Jonas Johansson, Mona Brantlind, Stefan Ek
FOI, Stockholm, Sweden
On the sensitivity of tetraethyleneglycol dinitrate.

09:40 Jimmie Oxley, Ryan Rettinger, James Smith
University of Rhode Island, Kingston, USA
Explosive properties of fuel/oxidizer mixtures

10:00 – 10:20 Coffee break

10:20 Johann Glück, Thomas M. Klapötke, Teresa Küblböck
Ludwig-Maximilian University of Munich, Munich, Germany
Chlorine-free red and yellow strobe formulations.

10:40 Teresa Küblböck, Johann Glück, Thomas M. Klapötke
Ludwig-Maximilian University of Munich, Munich, Germany
Multi-colored smoke formulations complying with the concept of fuel mixes

11:00 Alicia M. W. Dufter, Alexander D. Beck, Alexander Harjung, Thomas M. Klapötke,
Ludwig-Maximilian University of Munich, Munich, Germany
A chlorine- and dichromate-free pyrotechnic strobe system for multiple colors.

11:20 Sharanabasava V. Ganachari, Venkata Viswanath Jalla, Amarnath Gupta, Venkataraman Abbaraju
Advanced research in Nanoscience & Nanotechnology, KLE Technol. Univ., Vidyanagar, Hubballi, India
High energy catalytic studies of Industry scale synthesized Gamma Ferric Oxide (γ-Fe_2O_3) nanoparticles.

11:40 PHOTOGRAPHY in Hall 1

12:00 - 14:00 LUNCH BREAK

3B. Session ***University Hall No. 2*** **Thursday April 19th**

Chairman: Prof. Aleksander Smirnov
Bakhirev State Sci. Res. Inst. of Mechan Eng. Dzerzhinsk, Russia.

08:20 Yana Dubkova, Ilya Zhukov, Alexander Vorozhtsov, Sergey Sokolov
Tomsk State University, Tomsk, Russia
Preparation, mechanical activation and properties of the Al-Mg system powder materials.

08:40 Lianbo Li, Xiong Chen, Changsheng Zhou, Huajin Lai, Omer Musa
Nanjing University of Science and Technology, Nanjing, China
Study on ignition and combustion characteristics of Al/Mg fuel-rich propellant under tangential air flow.

09:00 Yang Xu, Qingzhong Cui
Beijing Institute of Technology, Beijing, China
Effect of born coated with AP on the underwater explosion performance of RDX-based explosives.

09:20 Yapeng Ou, Qingjie Jiao, Shi Yan
Beijing Institute of Technology, Beijing, China
Issues related with impurities in binder ingredients of polymer bonded explosive.

09:40 Xiao Xie, Tao Liu, Qing Zhu, Baohui Zheng
China Academy of Engineering Physics, Mianyang, China
Effect of hydrophobicity of FOX-7 particles on rheological properties of slurry and compressive strength of PBX.

10:00 – 10:20 Coffee break

10:20 Xinyou Shan, Xiong Chen, Xiaobing Ye, Yong He, Changsheng Zhou
Nanjing University of Science and Technology, Nanjing, China
Experimental investigations on rheological properties and viscoelastic constitutive model verification of pasty propellant.

10:40 Jordan Homan, Dave Tod, William Proud,
QinetiQ FHD, Sevenoaks, United Kingdom
A comparison of the mechanical properties of explosive simulants prepared using traditional and esonant acoustic mixing.

11:00 Qing Zhu
China Academy of Engineering Physics, Mianyang, China
Bioinspired polydopamine coating on the surfaces of energetic materials to enhance the interfacial mechanical performances.

11:20 Charlotte Alliod, Raphael Terreux, Guy Jacob
Institut de Biologie et Chimie des Protéines (IBCP),, Lyon, France
Prediction of regulation toxicological tests applied to high energy molecules.

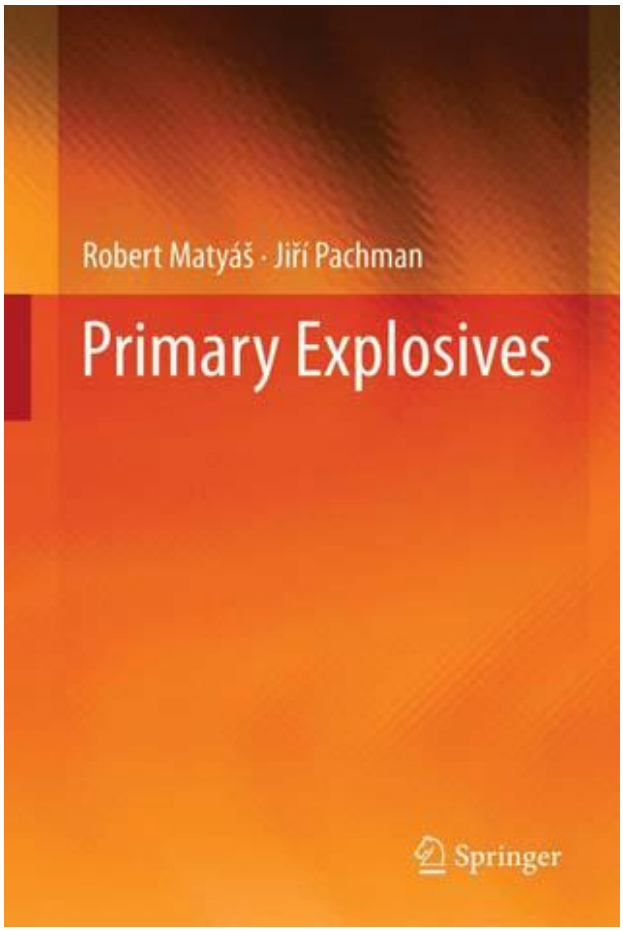
11:40 PHOTOGRAPHY in Hall 1

12:00 - 14:00 LUNCH BREAK

4. ***Session* – Poster program – see on page 12**

16:30 The second meeting of Scientific Committee (*University Hall*)

A books advertising

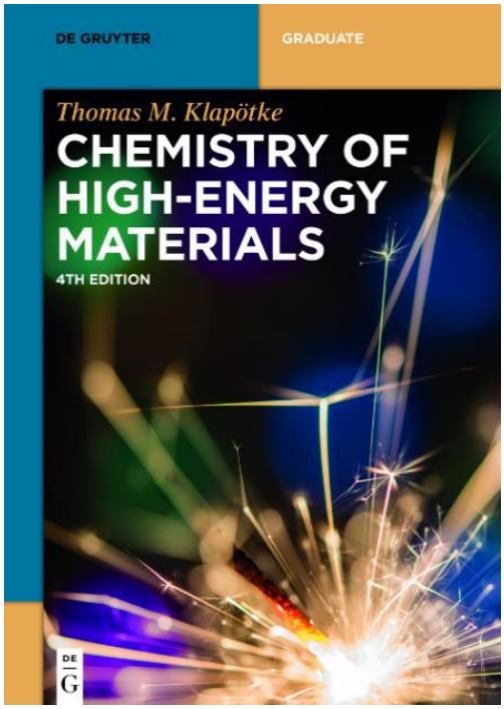


R. Matyáš, and J. Pachmáň,
Primary Explosives, Springer, Heidelberg 2012,
ISBN 978-3-642-28435-9, €106.95

Participants of the 20th Seminar NTREM in the University Hall on April 27st, 2017

Assoc. Prof. Jiri Pachman with Prof. Jianguo ZHANG who translated monograph "Primary Explosives" in Chinese.

Professors Muhamed Sućeska and Adam Cumming during coffebreak on April 26th, 2017.



From the Content:

The 4th revised edition expands on the basic chemistry of high energy materials of the precious editions and examines new research developments, including hydrodynamics and ionic liquids. Applications in military and civil fields are discussed. This work is of interest to advanced students in chemistry, materials science and engineering, as well as to all those working in defense technology.

Retail price: € 59.95 / US$ 68.99
4th Edition
print ISBN 978-3-11-053651-5
e-Book ISBN 978-3-11-053651-5

Lecture program of the 21st NTREM – Friday April 20th

5. Session *University Hall No. 1*

Chairman: Prof. Adam Cumming
University Edingburgh, United Kingdom

09:00 Aleksander Smirnov, Sergey Smirnov, Tatyana Pivina, David Lempert, Maija Kuklja
Bakhirev State Scientific Research Institute of Mechanical Engineering, Dzerzhinsk, Russia
Primary estimation of usage prospects of polynitrous energetic heterocycles.

09:20 Ricardo Mendes, Jose Campos, Jose Quaresma, Jose Gois, Jose Ribeiro
University of Coimbra, Coimbra, Portugal
Detonation in PBX based on RDX – prediction properties and experimental measurements in a divergent detonation propagation configuration.

09:40 Yuanxiang Sun
Beijing Institute of Technology, Beijing, China
Analysis of non-ideal detonation behaviour based on analog system.

10:20 – 10:40 Coffee break

10:00 Vladimir Zarko
Institute of Chemical Kinetics and Combustion, Russian Academy of Sciences, Novosibirsk, Russia
Microwave methods to measure the burning rate of energetic materials.

11:00 Katsumi Katoh, Takaaki Furusho, Yoshihide Gushima, Eiko Higashi, Hiroki Matsunaga, Mitsuo Izumo, Kunihiko Wakabayashi, Ikumi Matsui, Shuji Hatanaka
Graduate school of Engineering, Fukuoka University, Fukuoka, Japan
Effects of temperature and humidity on the mechanical sensitivity of firework compositions.

11:20 Manfred A. Bohn
Fraunhofer Institut für Chemische Technologie (ICT), Pfinztal, Germany
The connection between WLF equation and the Arrhenius equation.

11:40 Alexander Lukin
Western-Caucasus Research Center, Tuapse, Russia
A novel strategy for smart control by micro-scale oscillatory networks of the reactionary zones for enhanced operational capabilities of the next-generation solid propulsion systems.

12:00 – 13:00 CLOSING REMARKS including AWARDING OF PRIZES

Meeting of the Scientific Committee and representatives of sposors of the 20th Seminar NTREM on April 25th, 2017

Awarded young authors on the 20th NTREM 2017

The best lectures at the 20th NTREM (2017):
Mr. Nikita Muravyev (Semenov Inst. of Chem. Phys.)
Mr. Vitaly Kiselev (Novosibirst State Univ., Russia)
Mr. Leonid Fershtad (Zelinskii Inst. Org. Chem,),

The best posters at the 20th NTREM (2017):
Mr. Anatoliy Mitrofanov (Kemerovo State Univ., Russia)
Ms. Zetu Jiba (Council for Sci. & Ind. Res., Pretoria)
Mr. Chong ZHANG (Nanjing Univ. Sci.& Technol.)

Poster program of the 21st NTREM – Thursday April 19th

6. Session

Chairman: Prof. Svatopluk Zeman
University of Pardubice

Posters should be hung on **Wednesday**, ***April 18th***, before 14:00. Special poster sessions will take place on Thursday (***Apri 19th***) from 14:00 up to16:30 h. During this time authors should be present for discussion at the posters.

P.1 Turan Ozturk, Mehmet S. Eroglu
Istanbul Technical University and Marmara University, Istanbul, Turkey
Synthetic studies on HNIW.

P.2 Jun Yang
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China
Preparation and characterization of nitraminofurazan-featured composite energetic salts.

P.3 Mateusz Szala, Leszek Szymańczyk
Military University of Technology, Warsaw, Poland
Synthesis of 3,5-diamino-2,4,6-trinitrotoluene via Vicarious nucleophilic substitution.

P.4 Zdeněk Jalový Milan Jančík, Jindřich Mašín, Ahmed Hussein, František Liška, Jakub Selesovsky, Kamil Dudek
University of Pardubice, Czechia
Synthesis of 2,2-dinitroethene-1,1-diamine from 2-methylpyrimidine-4,6-diol and treatment of dinitromethane produced.

P.5 Wensheng Tao
Shanghai Institute of Organic Chemistry, CAS, Shanghai, China
Energetic salts based on 1,2,4,5-dioxadiazine-functionalized nitraminofurazan.

P.6 Gennady F. Rudakov, Natal'ya A. Spesivtseva
Mendeleev University of Chemical Technology, Moscow, Russia
New N-heteryl derivatives of tetrazolo[1,5-b][1,2,4,5]tetrazin-6-amine.

P.7 Elena Reinhardt, Jörg Stierstorfer, Thomas M. Klapötke
Ludwig-Maximilian University of Munich, Munich, Germany
Energetic 3-Nitramino-triazole Derivatives

P.8 Jonas Šarlauskas, Justas Vaitekūnas, Jelena Tamulienė
Institute of Biochemistry, Life Sciences Center, Vilnius University, Vilnius, Lithuania
Energetic polynitrophenyl substituted 1,2,4-triazole derivatives: synthesis, properties and LC-MS analysis.

P.9 Jonas Šarlauskas, Mindaugas Lesanavičius, Alessandro Aliverti, Narimantas Čėnas
Institute of Biochemistry, Life Sciences Center, Vilnius University, Vilnius, Lithuania
Reduction of nitroaromatic compounds by Plasmodium falciparum ferredoxin: NADP+ reductase: estimation of single-electron reduction potentials of explosives.

P.10 Alexander M. Astachov, Denis V. Antishin, Andrew A. Nefedov, Eduard S. Buka
Reshetnev Siberian State University of Science and Technology, Krasnoyarsk, Russia
Reaction of S,S'-dimethyl-N-nitroimidodithiocarbonate with 5-aminotetrazole.

P.11 Alexander A. Kushtaev, Nikita A. Berdinskikh, Nikolay V. Yudin, Vitold L. Zbarskii
Mendeleev University of Chemical Technology, Moscow, Russia
Synthesis and reactivity of nitro- and nitroso- derivatives of 6-hydroxy-2-methylpyrimidine-4(3H)-one.

P.12 Nikolay Yudin, Vu Quang Tuan, Maria Borovitina
Mendeleev University of Chemical Technology, Moscow, Russia
The cation-radical step in the nitration of 2-alkyl-substituted 4,6-dioxopyrimidines.

P.13 Haifeng Huang, Jun Yang
Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China
Energetic materials derived from nitration of 3-amino-4-chloroximefurazan.

P.14 Maxim Radzhabov, Leonid Belen'kii, Tatyana Pivina
Russian Academy of Sciences, Zelinsky Institute of Organic Chemistry, Moscow, Russia
Computational studies of the novel tetrazole addition reactions.

P.15 Cornelia C. Unger, Thomas M. Klapötke, Burkhard Krumm
Ludwig-Maximilian University of Munich, Munich, Germany
Energetic salts of pentaerythritol tetranitrocarbamate (PETNC), a PETN analogue.

P.16 Yuri Mikhailov, Lyudmila Romanova, Anna Darovskikh, Artem Bakeshko
Russian Academy of Science, Chernogolovka, Russia
Synthesis and properties of hyperbranched polyglycidyl nitrates.

P.17 Marc Bölter, Jörg Stierstorfer, Thomas M. Klapötke
Ludwig-Maximilian University of Munich, Munich, Germany
Reactions of dinitropyrazoles.

P.18 Mauricio Ferrapontoff Lemos, Manfred A. Bohn, Uwe Schaller
Brazilian Navy Research Institute, Rio de Janeiro, Brazil
Characterization of polyester-based polyurethane elastomers plasticized with energetic ionic liquids.

P.19 Dominik E. Dosch, Thomas M. Klapötke
Ludwig-Maximilian University of Munich, Munich, Germany
A fast and feasible synthesis for picryl bromide.

P.20 Thomas M. Klapötke, Jörg Stierstorfer, Norbert Szimhardt, Maximilian H. H. Wurzenberger
Ludwig-Maximilian University of Munich, Munich, Germany
Energetic copper(II) bromate complexes as replacement of lead and perchlorate containing primary explosives.

P.21 Nagarjuna Kommu, Auhutosh Parimi, Anuj A. Vargeese, Venkateswara Rao Kadiyam
Advanced Center of Research in High Energy Materials, University of Hyderabad, Hyderabad, India
Design of polynitro substituted azapropellane derivatives and their synthetic exploration.

P.22 Vladimir A. Sizov, Alexander G. Khina, Vladimir A. Lyubutin, [Alexandra M. Rukina, Vadim V. Sokolov, Valeria S. Uryadnikova, Anatoliy P. Denisyuk
Mendeleev University of Chemical Technology, Moscow, Russia
Synthesis of ferrocenedicarboxylic acid as a primary component for burning rate catalysts.

P.23 Sergey Vasil'ev, Natalia Podkorytova, Boris Polyakov
Reshetnev Siberian State University of Science and Technology, Krasnoyarsk, Russia
The interaction of 1-ferrocenyl-1,3-butanediol and 1,1'-bisferrocenyl-1,3-butanediol with hexamethylenediamine.

P.24 Jae-Kyeong Kim, Jae-Eun Lee, Joo-Seung Chae, Keun-Duk Lee, Kee-Kahb Koo
Sogang University, Seoul, South Korea
Crystallization of nitramine energetics by drowning-out.

P.25 Natalia L. Merkulova, Vjacheslav L. Korolev, Vitalii M. Danilenko, Ivan D. Nesterov, Tatyana S. Pivina
Russian Academy of Sciences, Zelinsky Institute of Organic Chemistry, Moscow, Russia
Investigation of the tautomerism of imidazo[4,5-e]benzo[1,2-c;3,4-c']-difuroxan derivatives by calculation and experimental methods.

P.26 Kivanc Aydincak, Bora Bilgic
Roketsan Missiles Inc., Ankara, Turkey
Characterization of HNIW precursor TADBIW, synthesized via HBIW.

P.27 Nikolay Yudin, Sergei Fedorchenko, Svetlana Kapustina
Mendeleev University of Chemical Technology, Moscow, Russia
Determination of the purity of CL-20/HMX cocrystals by FT-mir and FT-nir spectroscopy.

P.28 Nikolay Yudin, Vasily Kolesov, Alexey Konovalov, Leonid Bachurin, Sergei Fedorchenko, Alexander Ulyanov, Svetlana Kapustina
Mendeleev University of Chemical Technology, Moscow, Russia
Spectral properties of energetic materials and their heating by the near-IR laser.

P.29 Dmitry Khakimov, Alexander Dzyabchenko, Tatyana Pivina
Russian Academy of Sciences, Zelinsky Institute of Organic Chemistry, Moscow, Russia
Modeling of crystal structure of bifurazano[3,4-b:3',4'-f]furoxano[3",4"-d]oxacycloheptatriene (BFFO) as the example of multifurazan compounds.

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Published in Proceedings:

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Pictures from the 20th Semianr NTREM, April 2017

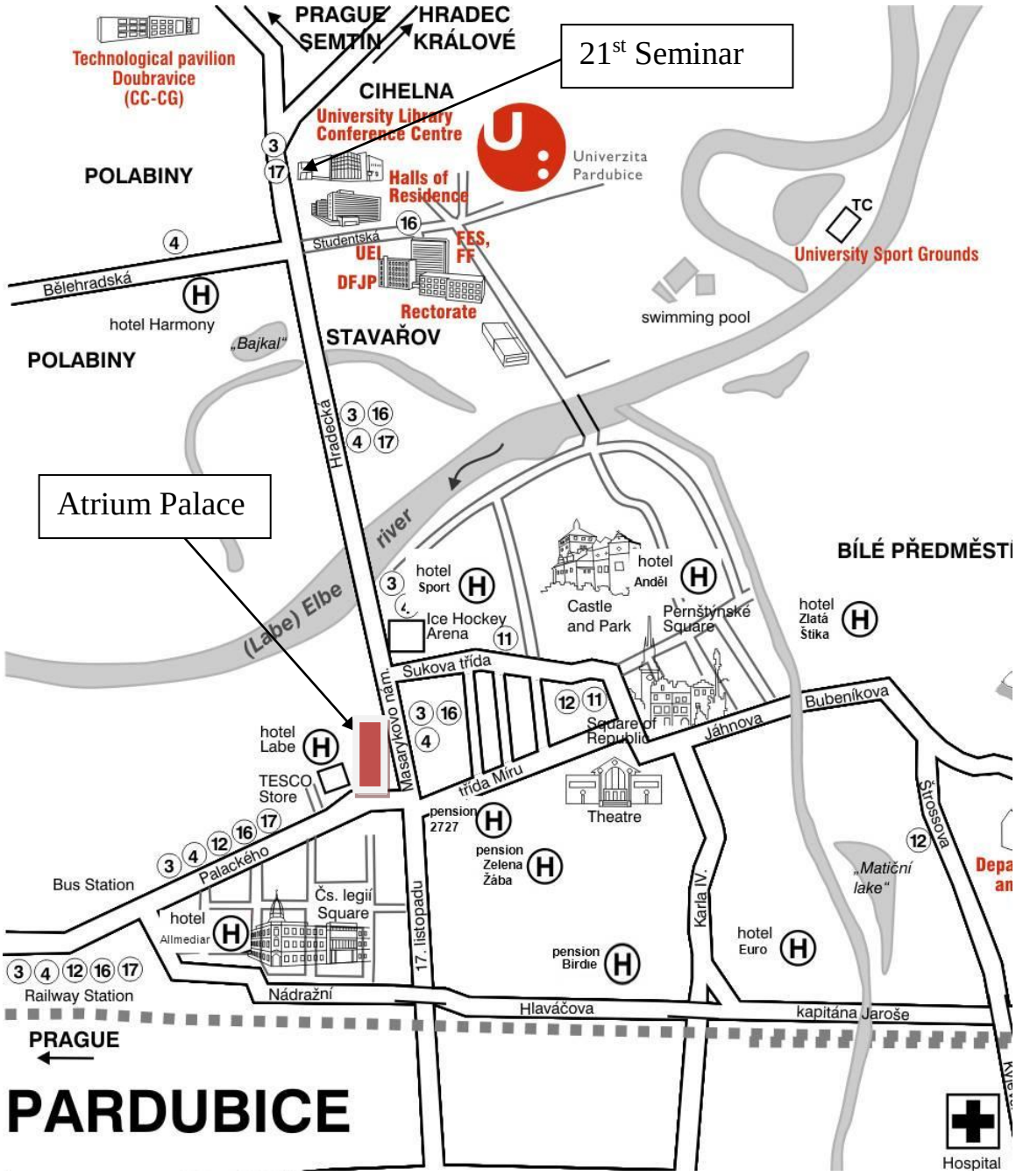
Evening's program of the 21st NTREM – Thursday April 19th

18:30 - 22:00
EVENING PROGRAM -A friendly get-together in the Congress Centre in Atrium Palace

The **Atrium Palace** of Pardubice (former AFI Palace) is finding in the town center on the main crossing in Pardubice (on the Masaryk square)

Masaryk square – Atrium Palace is on the left side

21st SEMINAR - orientation map – town PARDUBICE



The old town Pardubice – Pershtein square