

**UNIVERSITY OF PARDUBICE**

Faculty of Chemical Technology, Institute of Energetic Materials

**PROGRAM**

of the 28<sup>th</sup> seminar

**NEW TRENDS IN RESEARCH  
OF ENERGETIC MATERIALS**



**NTREM 2026**

Pardubice, Czech Republic, April 22<sup>nd</sup> – 24<sup>th</sup>, 2026

<http://www.ntrem.com>

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

28<sup>th</sup> INTERNATIONAL SEMINAR  
“NEW TRENDS IN RESEARCH OF ENERGETIC MATERIALS”

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NTREM is an international meeting of students and early career researchers who are involved in the fundamental understanding, development, technology, industry or application of energetic materials. The seminar enables the presentation of research and allows feedback and interaction with senior, well established experts in the field. In addition, participants will meet and form networks enabling them to communicate amongst each other. It is expected that the seminar will help career progression. The Seminar is intended to provide a pleasant and welcoming atmosphere where exchange of professional experiences goes along with building of strong personal relations among young specialists working in the field of EM.

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 at the University of Pardubice and, in keeping with the tradition of previous meetings, was originally planned to take place in Lecture Hall A1. However, due to circumstances beyond our control, Lecture Hall B1 will be used on Wednesday, while Lecture Hall A1 will be used on the remaining days.

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

**Registration fee:** 200 € paid on spot.

**Registration:** registration of participants will take place at the University Hall:

April 21 <sup>st</sup>	16:00 - 18:00	with welcome snack at the University Hall A1
April 22 <sup>nd</sup>	07:30 - 09:00	Faculty of Transport Engineering (building DC)

**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. ~180 \$, 140 €) printed version and 500 CZK (i. e. ~25 \$, 20 €) electronic version (USB) – the prices are valid at the time of the seminar. The USB with Proceedings will be provided to the main authors and participants of the seminar free of charge.

**Please, visit the web site [www.ntrem.com](http://www.ntrem.com) for updates**

**Chairman of the Seminar:**

Assoc. Prof. Jiri Pachman

*IEM, FCT University of Pardubice, CR***Chairman of the Scientific Committee:**

Prof. Adam Cumming

*University of Edinburgh, UK***Members of the Scientific Committee:**

Assoc. Prof. Taner Atalar

*Tubitak Sage, Turkey*

Dr. Manfred A. Bohn

*Fraunhofer ICT, Pfinztal, Germany*

Dr. Chris Braithwaite

*University of Cambridge, UK*

Prof. Martin Braithwaite

*University of Cambridge, UK*

Prof. Jose A. Campos

*University of Coimbra, Portugal*

Dr. David Chavez

*Los Alamos National Laboratory, NM, USA*

Dr. Ruth Doherty

*Energetics Technology Center, Indian Head, Maryland, USA*

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*FOI, Stockholm, Sweden*

Prof. Michael Gozin

*University of Tel Aviv, Israel*

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*University of Idaho, Moscow, USA*

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Prof. Abbaraju Venkataraman

*Gulbarga University, Kalaburagi, India***Organizing Committee**

Chairman of the Committee:

Dr. Marcela Jungova

*IEM, FCT, University of Pardubice, CR*

Members of the Committee:

Dr. Jakub Selesovsky

*IEM, FCT, University of Pardubice, CR*

Dr. Iva Ulbrichova

*Dean Office, FCT, University of Pardubice, CR*

Organizing committee of NTREM:

Institute of Energetic Materials  
Faculty of Chemical Technology  
University of Pardubice  
532 10 Pardubice  
CZ, European Union

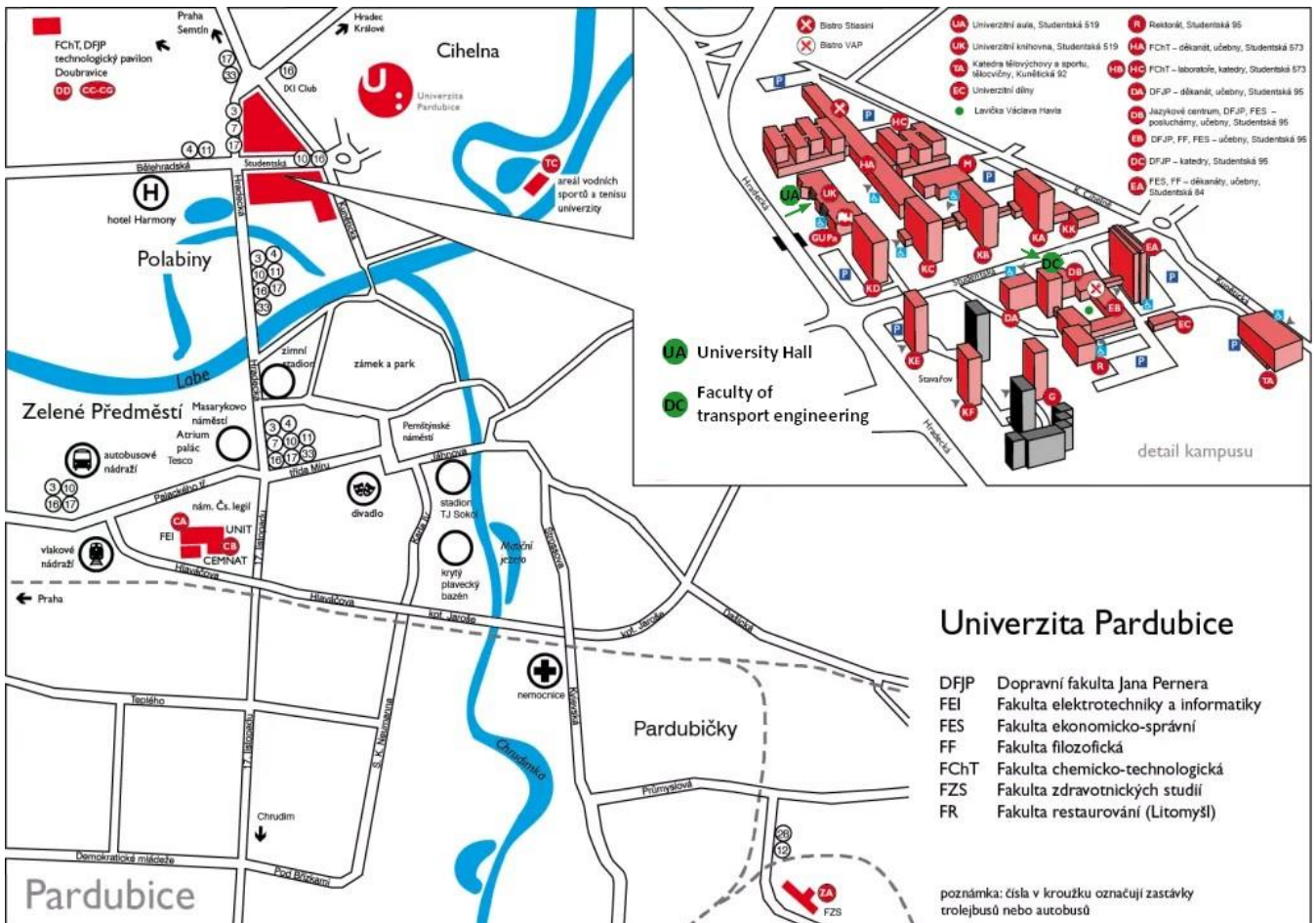
Phone: (+420) 46 603 8023  
E-mail: seminar@ntrem.com

**Affiliated activities:**

The first meeting of the scientific committee will be held on Tuesday, April 21<sup>st</sup>, 2026, at 17:30 in the “Dašické sklepy”. The bus will depart from the University Hall at 17:00. The second meeting of the committee will be held on Thursday, April 23<sup>rd</sup>, 2026, at 16:00 at the University Hall.

A friendly get-together for NTREM participants will take place on Thursday, April 23<sup>rd</sup>, 2026 at 18:30 – 22:00, in the **OC PALÁC PARDUBICE**, Pardubice (see the last page for map).

The conference opening and the first day of lectures will be held at the Faculty of Transport Engineering (Jan Perner Transport Faculty – **DC Building**, 350m from A1), as shown in the image and map. The following days will continue at the University Hall A1, as usual.



## LECTURE PROGRAM OF THE 28<sup>th</sup> NTREM – WEDNESDAY APRIL 22<sup>nd</sup>, 2026

- 07:30 - 08:30**      **REGISTRATION**
- 8:30**              **MEETING OF SPEAKERS WITH CHAIRMAN**
- 8:45**              **SEMINAR OPENING BY SCHOOL REPRESENTATIVE – HALL B1 (BUILDING DC)**  
**& ORGANIZATION REMARKS**

### 1. *Session*

Chairman:            Dr. Jörg Stierstorfer  
*(Ludwig Maximilian University of Munich, Germany)*

- 09:20**    *Navid Rahman*  
Synthesis and characterization of salts based on 1,2 bis(5-(trifluoromethyl)-4H-1,2,4-triazol-3-yl) diazene *p. 240*
- 09:40**    *Shouei Yiu*  
Investigating the effect of nitration degree on nitroresorcinol-based energetic coordination compounds *p. 258*
- 10:00**    *Qing Ma*  
Synthesis and characterization of pyrazolo[3,4 b]pyridine fused insensitive high-energy materials *p. 158*

### **10:20 - 10:40**      **COFFEE BREAK**

- 10:40**    *Lukas Eberhardt*  
Synthesis and physicochemical characterization of energetic salts derived from 5-methyl-1-nitraminotetrazole *p. 78*
- 11:00**    *Amr Helmy*  
Replacement of RDX by TKX-50 in a putty-plastic bonded explosive based on polydimethylsiloxane (PDMS) *p. 111*
- 11:20**    *Arnaud Osi*  
Oxidant filled nanoporous carbon as lead-free primary explosive *p. 220*
- 11:40**    *Han Gao*  
Study of LLM-105 porous spherulites: preparation, characterization and crystallization mechanism *p. 91*

### **12:00 – 14:00**      **LUNCH BREAK**

## 2. Session

Chairman: Dr. Ruth Doherty  
(Energetics Technology Center, Indian Head, Maryland, USA)

### MEETING OF SPEAKERS WITH CHAIRMAN

- 14:00** *Harvey J. Newman* p. 182  
On the use of a closed vessel to determine the effect of novel ballistic modifiers on the burn rate
- 14:20** *Davney Ondzié-Pandzou* p. 214  
Burning velocity of pyrotechnic compositions at various compaction pressures
- 14:40** *Kento Shiota* p. 245  
Influence of water contamination on the combustion behavior of ammonium dinitramide-based formulation containing monomethylamine and urea
- 15:00 – 15:20** **COFFEE BREAK**
- 15:20** *Adam Brandt* p. 209  
A comparison of different methods in the analysis of the nitrogen content of nitrocellulose
- 15:40** *Inês Cabete* p. 42  
Ageing effects on the structure and chemistry of gun propellants
- 16:00** *Suzanne Romeijn* p. 84  
Feedstock scarcity, alternative cellulose sources for gun propellants

**16:45 – 18:30** **GUIDED TOUR THROUGH PARDUBICE IN THE FOOTSTEPS OF “SILVER A”  
(MAX 40 PARTICIPANTS)**

## LECTURE PROGRAM OF THE 28<sup>th</sup> NTREM – THURSDAY APRIL 23<sup>rd</sup>, 2026

### 3. Session

Chairman: Prof. Karl Rink

*(University of Idaho, Moscow, USA)*

#### MEETING OF SPEAKERS WITH CHAIRMAN

- 08:30**    *Matthieu Daniel*  
Database screening for the identification of potential thermostable and powerful explosives    *p. 56*
- 08:50**    *Qin Liu*  
Investigation of energy release characteristics of energetic materials    *p. 131*
- 09:10**    *Wei Cao*  
Disc acceleration experiments and simulation of HMX-based aluminized explosives with PTFE addition    *p. 49*
- 09:30**    *Peter Schultz*  
Cycled DSC-analysis of HNS in energetic melts    *p. 251*
- 09:50**    *Xing-long Li*  
Research on propagation characteristics of explosion shock waves from typical aluminized explosives under negative pressure environment    *p. 141*

#### **10:10 – 10:30**            **COFFEE BREAK**

- 10:30**    *Geir Petter Novik*  
An emerging safety hazard: triacetone triperoxide formation in aged 2-propanol    *p. 198*
- 10:50**    *Zi-jian Lyu*  
Exploration of differences in anti-static ability of various explosives    *p. 149*
- 11:10**    *Marcin Hara*  
Investigation of the reaction of selected pyrotechnic and explosive mixtures to bullet impact    *p. 103*

- 11:30**    **POSTER SESSION INTRODUCTION**  
2 min oral poster introduction

#### **12:50**            **GROUP PHOTOGRAPHY BEFORE LUNCH**

#### **13:00 – 14:00**            **LUNCH BREAK**

#### 4. *Poster Session*

Chairman: Assoc. Prof. Jiri Pachman  
(University of Pardubice, CR)

<b>P1</b>	Influence of ignition source on the dispersed dust clouds <i>M. Kreisl, P. Hrebickova, B. Janovsky, V. Pelikan, P. Kuna</i>	<i>p. 418</i>
<b>P2</b>	Bioleaching as a sustainable ex situ remediation method for agricultural soils contaminated with heavy metals and energetic materials <i>N. Hanáková, L. Balusová, A. Jančařík, Š. Vinter</i>	<i>p. 368</i>
<b>P3</b>	Optimizing stand-off distance and sealing methods using additive manufacturing for engineering support explosive tasks <i>M. Sedláček, M. Bilina, J. Procházka, M. Vitek</i>	<i>p. 478</i>
<b>P4</b>	Design and setup of experiments on the penetration of Misnay–Schardin-type explosively formed projectiles <i>Z. Bajić, A. Popadić, S. Aleksić, J. Bogdanov</i>	<i>p. 281</i>
<b>P5</b>	Nitro esters of oxetane and oxirane dialcohols as monomers for energetic dendrimeric co-polymers <i>S. Thamm, T. Klapötke, B. Krumm, R. Dobson, A. Dejeaifve</i>	<i>p. 490</i>
<b>P6</b>	Utilising foundation models for energetic materials property predictions <i>A. Backman, K. Mohan, S. Seth, C. Morrison</i>	<i>p. 268</i>
<b>P7</b>	Reliability of bridge wire fuse heads for serial ignition firing applications <i>A. Woschnak, M. Eckl, M. Haumer, W. Max, O. Janowitz</i>	<i>p. 517</i>
<b>P8</b>	The idea of color-ranking-based laboratory safety <i>M. Vitík, M. Ferjenčík</i>	<i>p. 507</i>
<b>P9</b>	Rare-earth styphnates: feasible alternatives for lead styphnate? <i>R. Deun, B. Simoens, R. Riet, S. Yiu, M. Lommel, J. Stierstorfer, T. Klapötke</i>	<i>p. 318</i>
<b>P10</b>	Study on the hazard resulting from fragments of detonated propelling charges <i>J. Bogdanov, M. Marinković, M. Krstović, D. Bajić, Z. Bajić</i>	<i>p. 288</i>
<b>P11</b>	Characterization of Nonel tubes for shock wave generation and sensor calibration <i>R. Fosse, D. Sedlacek, J. Pachman</i>	<i>p. 352</i>
<b>P12</b>	Method for VoD measurement on spherical charges <i>S. Jirman, O. Koutný, J. Pachman</i>	<i>p. 408</i>
<b>P13</b>	Producing the burn-rate suppressant of solid rocket propellant in a regular crystal structure <i>B. Čelik Fidanci, Ö. Bilen, O. Karakurt, N. Ucar, K. Aydinçak</i>	<i>p. 293</i>
<b>P14</b>	Synthesis and characterization of ionic bio-energetic materials based on dinitramide <i>P. Heimerl, T. Klapötke, J. Stierstorfer</i>	<i>p. 384</i>
<b>P15</b>	Characterizing the initiation capacity of low-density granular explosives <i>A. Lega, M. Arrigoni, R. Riet</i>	<i>p. 448</i>
<b>P16</b>	The effect of sample confinement in detonation calorimetry <i>M. Künzel, J. Kucera</i>	<i>p. 436</i>
<b>P17</b>	Light emission from high explosive samples in a detonation chamber <i>M. Künzel, J. Kucera</i>	<i>p. 441</i>
<b>P18</b>	Testing of detonation products jets from explosive charges containing tungsten powder <i>M. Hara, W. Trzciński</i>	<i>p. 377</i>

<b>P19</b>	Photo-curable 1-alkyl-3-vinyl-imidazolium energetic monomers for the production of tunable fuel-binders for energetic propellants <i>Y. Zertal, M. Yong, G. Parvari, L. Gottlieb, Y. Eichen, S. Sevilla</i>	<i>p. 524</i>
<b>P20</b>	Experimental analysis on propellant laser ignition and combustion process <i>J. Clanche, S. Kerampran, M. Monloubou, N. Daviot, I. Masquelier, R. Andry</i>	<i>p. 300</i>
<b>P21</b>	Novel binder formulation for rocket motor designed for use in HEAT shoulder fired weapons <i>M. Munteanu, O. Iorga, A. Marin, A. Rotariu</i>	<i>p. 462</i>
<b>P22</b>	Chemical compatibility assessment of three different PBX formulations with silicone sealants <i>D. Demirkiran</i>	<i>p. 309</i>
<b>P23</b>	Formulation and detonation performance of low-velocity PETN-based plastic explosives <i>D. Bajić, M. Krstović, J. Bogdanov, Z. Bajić</i>	<i>p. 274</i>
<b>P24</b>	Optimization of pyrotechnic delay compositions <i>D. Vianna Cantini, V. Pelikan, J. Pachman</i>	<i>p. 500</i>
<b>P25</b>	Characterization of new castable formulations for insensitive munitions <i>D. Sandu, A. Podaru, M. Munteanu, T. Rotariu</i>	<i>p. 469</i>
<b>P26</b>	Characterization of novel formulations designed for hail suppression and rain enhancement technologies <i>G. Toader, A. Diacon, L. Mitrica, T. Tiganescu</i>	<i>p. 496</i>
<b>P27</b>	Evaluation of fire suppression performance of organic acid salt/oxidizer mixtures <i>E. Higashi, M. Fujimoto, K. Moriyama, S. Akagi, K. Inaba, A. Kaiho, D. Kubo, K. Katoh</i>	<i>p. 392</i>
<b>P28</b>	Machine learning modelling for nitrocellulose-based propellant ageing <i>A. Guerreiro, J. Borges, C. Ferreira, J. Ribeiro</i>	<i>p. 360</i>
<b>P29</b>	Synthesis and characterization of a new energetic compound: 1,1,2,2-tetra-(1H-tetrazol-5-yl) cyclopropane (HDEX-252) <i>D. Holeoleo, A. Diacon, T. Rotariu, A. Rotariu, F. Dirloman</i>	<i>p. 396</i>
<b>P30</b>	Fluorescence quenching as a detection method for trace explosives using perylene diimide derivatives in solution and organogels <i>A. Diacon, D. Stanciu, G. Toader, T. Rotariu, A. Gavrilă</i>	<i>p. 328</i>
<b>P31</b>	Comparative evaluation of double-base and composite rocket propellants in anti-aircraft applications using multi-criteria decision making <i>D. Djukić, Z. Bajić</i>	<i>p. 332</i>
<b>P32</b>	A laboratory study of organic waste materials in emulsion explosives <i>M. Dobrilović, I. Dobrilović, M. Sućeska, V. Škrlec, S. Stanković, H. Wolf</i>	<i>p. 341</i>
<b>P33</b>	Real-time ammonia emission monitoring during the composite propellant kneading <i>M. Ferrapontoff Lemos, M. Tavares Lima, J. Pereira de Souza, P. Simões Teixeira Amaral, F. Santos da Luz</i>	<i>p. 346</i>
<b>P34</b>	Synthesis and characterization of a novel triol-based energetic plasticizer <i>J. Lechner</i>	<i>p. 458</i>
<b>P35</b>	Vacuum stability evaluation of pyrotechnic mixture - double-base propellant compatibility <i>M. Krstović, T. Stančić, K. Nestorović, Z. Bajić, J. Bogdanov, D. Bajić</i>	<i>p. 426</i>
<b>P36</b>	The use of 3D printing for the fabrication of flexible linear shaped charges <i>O. Iorga, M. Purcarea, A. Moldovan, A. Marin</i>	<i>p. 402</i>
<b>16:30</b>	<b>SCIENTIFIC COMMITTEE MEETING AT LECTURE HALL</b>	
<b>18:30</b>	<b>SOCIAL EVENT - BANQUET AT OC PALAC PARDUBICE</b>	

## LECTURE PROGRAM OF THE 28<sup>th</sup> NTREM – FRIDAY APRIL 24<sup>th</sup>, 2026

### 5. Session

Chairman: Prof. Adam Cumming  
(University of Edinburgh, UK)

#### MEETING OF SPEAKERS WITH CHAIRMAN

- 09:00** *Sylvie NGUYEN*  
A new synthetic index enabling AI-guided discovery of novel molecules *p. 188*
- 09:20** *Martin Braithwaite*  
Prediction of ideal detonation characteristics in high explosives – challenges and opportunities *p. 34*
- 09:40** *Shiro Kubota*  
Evaluation of mixed gas and solid components in detonation products *p. 124*
- 10:00** *Manfred A. Bohn*  
Simulation of heat flow curves from microcalorimetry What has been achieved already *p. 6*

#### **10:20 – 10:40** COFFEE BREAK

- 10:40** *Hiroki Matsunaga*  
Thermal decomposition and combustion of ammonium dinitramide-based high energetic ionic liquids with improved ignitability *p. 175*
- 11:00** *Mary Dean*  
Harmonization of fertilizer safety testing across manufacturing, storage, and transport *p. 60*
- 11:20** *Katsumi Katoh*  
Friction sensitivity testing variations by porcelain consumable type and plate–peg contact state *p. 118*
- 11:40** *Guy Marlair*  
Unraveling the actual safety benefits of adding inorganic fillers to ammonium nitrate *p. 227*

#### **12:00** PRIZE AWARDS & CLOSING THE SEMINAR



**FIRST DAY OF LECTURES**

**FACULTY OF TRANSPORT  
ENGINEERING**

**Wednesday**

<https://mapy.com/s/bagufepuhe>

50.0482397N, 15.7693906E



**MAIN VENUE**

**UNIVERSITY HALL**

**Tuesday, Thursday, Friday**

(Aula Arnošta z Pardubic)  
Studentská 519, Pardubice

<https://mapy.cz/s/larunemona>

50.0496653N, 15.7665203E



**BANQUET**

**OC PALÁC PARDUBICE**

**Thursday evening**

Masarykovo nám. 2799, Pardubice

<https://mapy.com/s/katupejaze>

50.0365475N, 15.7688042E

Parking is available in the underground parking garage of the Palác Pardubice shopping mall, with the entrance from Závodu míru Street (50.0380622N, 15.7682981E)

Bus or Trolleybus - more info at [www.dpmp.cz](http://www.dpmp.cz)

From the Main Train Station to University Hall – line 3, 17, 33 (Polabiny Hradecká – stop No. 6)

## PARKING NEAR THE UNIVERSITY HALL

