

**Part 1**

Advertisement: *University of Pardubice, Faculty of Chemical Technology* ..... 1

Advertisement: *Office of Naval Research Global* ..... 4

Advertisement: *STV Group* ..... 6

**Presentations**

Comparison of castable PBXs prepared from different sources of energetic fillers in terms of processability  
*Selen Aksu, Cansu Tuygun, Onurcan Aslan, Tarik Yucel, Deger Cetin* ..... 8

Chemistry of 2-hydroxy-5-aminotetrazole  
*Maximilian Benz, Lukas J. Eberhardt, Thomas M. Klapötke, Tobias Lenz, Jörg Stierstorfer* ... 17

Chemical stability and thermal analysis – use of terms and methods with energetic materials  
*Manfred A. Bohn* ..... 23

Fifty years development in the thermodynamics of ideal condensed phase detonations  
*Martin Braithwaite* ..... 45

Optimized parameters for underwater blast wave generator models used in design of protective structures  
*Damjan Cekerevac, Constança Rigueiro, Eduardo Pereira, Aldina Santiago, José Góis* ..... 60

Design of solid composite propellants through modeling and numerical simulation  
*Ioana Alexandra Dan, Liviu Cristian Matache, Florin Marian Dirloman, Adrian Nicolae Rotariu, Razvan Marian Mircioaga* ..... 70

An accelerated aging study of LLM-105 and its plastic bonded explosive  
*Alexander Gash, J. Reynolds, M. Gill, J. Nguyen, S. Clarke, P. Hernandez, H. Mulcahy, G. Guillen, K. Coffee, A. Panasci-Nott, L. Merrell* ..... 80

Tungsten and copper (II) oxide mixtures as gasless time-delay compositions for mining detonators  
*Marcin Gerlich, Waldemar Trzciński, Marcin Hara* ..... 89

Energetic material compatibility testing – what is it really telling us?  
*Christopher Hollands, Romuald Van Riet, Juliette Lo* ..... 102

Explosive train modeling based on small scale tests  
*Serene H.Y. Chan, Yeo Kwee Liang, Angela P.G. Ng, Hng Huey Hoon* ..... 113

Formulation of energetic resins for additive manufacturing <i>Kay Chen, David Lewis</i> .....	123
Improved measurements of impact sensitivities of energetic materials <i>Dennis Christensen, Erik Unneberg, Eirik Høyheim, Tomas Lunde Jensen, Nils Lid Hjort</i> ....	128
Minimisation of by-products and optimisation of the yield in the synthesis of BuNENA <i>Jonas Johansson, Stefan Ek</i> .....	139
Investigation of a new promising process for RDX and HMX synthesis via TRAT and TAT <i>Jasmin T. Lechner, Thomas M. Klapötke, Jörg Stierstorfer, Moritz Mühlemann, Guillaume Lemarchand</i> .....	147
Nitrolysis of cellulose – an investigation of hydrolysis under nitration conditions <i>Edmund Morris, Colin Pulham, Patrick McMaster, Carole Morrison</i> .....	154
Optimization of continuous method nitration of toluene by dinitrogen pentoxide/chloroform solution with using design of experiments (DoE) methods <i>Andrzej Nastala, Paweł Maksimowski, Waldemar Tomaszewski</i> .....	162
Energetic formulations of oxyhalide salts <i>Jimmie Oxley, James Smith, Athina Kominia</i> .....	169
Synthesis and reactivity of 5-hydrazino-3-nitro-1,2,4-triazole (HNT): an amphoteric energetic platform <i>Eric Pasquinet, Matthieu Daniel, Loïc Habert</i> .....	177
Fluorinated binders for metal oxidation <i>Sreekumar Pisharath, Venu Keerthi, Ong Yew Jin, Hng Huey Hoon, Tay Chor Yong</i> .....	183
High resolution temporal and spatial studies into sympathetic reaction of commercial detonators: Initial studies <i>William G. Proud, Jergus Strucka, Nicholas Crowther, Frederick Boudier, Bratislav Lukic, Alexander Rack, Simon Bland, Jiri Pachman, David J. Chapman, Daniel Eakins</i> .....	191
Parameter tuning in microfluidic flow-focusing droplet generators for tailored ADN emulsions <i>Ligia Radulescu</i> .....	197
Synthesis of CL-20 by palladium free route by using cyclopropylamine based cage structure <i>Vepa Kameswara Rao, Nagarjuna Kommu, Durgarani Karike, Abdul Munaf, Pampuram Arvind</i>	202
Synthesis, characterization and comparison of differentially bridged nitraminotriazoles and their energetic salts <i>Christian Riedelsheimer, Alexander G. Harter, Thomas M. Klapötke, Burkhard Krumm, Jasmin T. Lechner, Luca V. Parziale</i> .....	206
Adding machine learning approaches to RoseBoom2.3 <i>Sabrina Wahler, William G. Proud, Thomas M. Klapötke</i> .....	215

Accelerated aging characteristics of AP/HTPB based solid composite propellants and service life determination models <i>Melahat Yapici, Taner Atalar, Ali Fatih Zeybek, Deger Cetin</i> .....	228
Advertisement: <i>Biazzi SA</i> .....	239
Advertisement: <i>OZM Research</i> .....	240
Advertisement: <i>Austin Detonator, Inc.</i> .....	242

## Posters

Effects of addition of opacifiers on the laser ignition of NC-GAP propellant <i>Karen S. Andrade, Thomas M. Klapötke</i> .....	244
Combustion analysis of the quaternary first fire mixture <i>Zoran Bajić, Jovica Bogdanov, Jovica Nešić, Jelena Mojsilović, Stevan Stupar</i> .....	249
2-azidoethyl-tetrazole as a ligand for laser-ignitable energetic materials <i>Lukas Bauer, Simon M. J. Endraß, Thomas M. Klapötke, Jörg Stierstorfer</i> .....	256
Development of an azidoethyl-transfer reaction protocol for azoles <i>Lukas Bauer, Lennart Kirchhoff, Thomas M. Klapötke, Jörg Stierstorfer</i> .....	263
Characterization of TATP as a donor charge in a detonation train <i>Djamal Belmehdi, Moulai Karim Boulkadid, Michel H. Lefebvre, Romuald Van Riet</i> .....	271
Calculated performance parameters of detonated nitrocellulose-based propellants <i>Jovica Bogdanov, Zoran Bajić, Saša Brzić, Danica Bajić, Mirjana Krstović</i> .....	278
Energetic properties of ZrW <sub>2</sub> and HfW <sub>2</sub> under impact <i>Jan W. Cremers, Thomas M. Klapötke</i> .....	284
Applying machine learning techniques to balance performance and stability of high energy density materials <i>Imene Derbali, Raphael Terreux, Nicolas Vandecandelaere</i> .....	293
Blasting properties of low-density emulsion based mixtures <i>Mario Dobrilović, Vinko Škrlec, Vječislav Bohanek, Ivana Dobrilović</i> .....	297
Synthesis and characterization of high energetic materials based on 1,2,3-triazoles and 1,3,4-oxadiazoles <i>Lukas J. Eberhardt, Thomas M. Klapötke, Tobias Lenz, Jörg Stierstorfer</i> .....	304
Controlled synthesis of star-shaped hydroxyl-terminated polybutadiene <i>Wesley S. Farrell, Edward Gravois, Nicholas C. Molineaux</i> .....	309
Effects of mechanical impact on PBX disks investigated by IR and Raman spectroscopy <i>Michael Herrmann, Manfred A. Bohn</i> .....	315

Solubility determination and recrystallization studies of guanidinium 5,5'-azotetrazolate <i>Huu Trung Hoang, Toan Trung Nguyen, Dung Van Nguyen</i> .....	326
High burning rates propellants based on GAP <i>Michał Chmielarek, Katarzyna Cieślak, Jan Kindracki, Krzysztof Wacko</i> .....	334
Performance of 3D printed shaped-charge liners <i>Stepan Jirman, Jiri Pachman</i> .....	340
Application of calorimetry to estimate the thermal performance of thermobaric explosives <i>Mirjana Krstović, Danica Bajić, Bojana Fidanovski, Mladen Timotijević, Slavica Terzić, Dragan Knežević</i> .....	347
On the effects influencing calorimetric measurement of the heat of explosion <i>Jindrich Kucera, Martin Künzel</i> .....	356
Thermal and ballistic properties of ZPP based priming mixtures <i>Petr Kuna, Vojtěch Pelikán</i> .....	362
Small-scale detonation velocity measurements using fiber optic probe <i>Martin Künzel, Jindrich Kucera</i> .....	367
Explosion parameters of air dispersed nitrocellulose ignited by exploding wire <i>Richard Kuracina, Zuzana Szabová, László Kosár</i> .....	373
Investigation of 3,5-diamino-1,2,4-oxadiazole as a precursor for energetic salts <i>Patrick Lieber, Uwe Schaller, Thomas M. Klapötke</i> .....	382
Effect of tetrazene preparation conditions on its powder characteristics <i>Jakub Mikuláščík, Jan Ryšavý, Matyáš Robert</i> .....	388
Experimental vapor pressures of the commonly used plasticizer TMETN via transpiration method supported by quantitative chromatography <i>Andreas Neuer, Jasmin T. Lechner, Thomas M. Klapötke</i> .....	397
Synthesis and analysis green pyrotechnic compositions <i>Milan Olšovský, Milan Krištof, Petr Kuna, Šimon Budzák</i> .....	406
Prediction of the enthalpy of formation by density functional theory calculations <i>Andreas Omlor, Manfred A. Bohn, Johannes Lang</i> .....	410
Attractive nitramines/polyaniline composite crystals via co-agglomeration <i>Veerabhadragouda B Patil, Petr Belina, Roman Svoboda, Svatopluk Zeman</i> .....	419
2D numerical simulation of two metallic concentric tubes explosively-driven <i>Adrian Nicolae Rotariu, Octavian Chiriac, Liviu Cristian Matache, Florina Bucur</i> .....	432
Some observations on the role of scientific information in Poland – results of a survey conducted among researchers working with explosives <i>Tomasz Sałaciński</i> .....	438

Development of a new screening technique for burning rate modification assessment <i>Filip Sazecek, Petr Stojan, Jiri Pachman</i> .....	446
Lithium tetrazole salts as green colorants in pyrotechnical formulations <i>Alexander Schweiger, Jörg Stierstorfer, Thomas M. Klapötke</i> .....	454
Evaluation of input parameters for the non-ideal detonation model of emulsion explosives <i>Sinisa Stankovic, Barbara Stimac Tumara, Ivana Dobrilović, Muhamed Suceska</i> .....	461
Initial attempts in laser acceleration of thin metal plates <i>Ondrej Zeman, Jiri Pachman</i> .....	470
Advertisement: <i>NICOLET CZ</i> .....	477
Advertisement: <i>Astotec Pyrotechnic Solutions</i> .....	478
Keyword Index .....	480
Author Index .....	482
Advertisement: <i>ZVS holding</i> .....	484
Advertisement: <i>Explosia</i> .....	486