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Colorado Springs, Colorado, USA

**Pyrotechnical Aspects of self-propagating high temperature
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2	DETONATION PERFORMANCE OF ADN AND ITS MIXTURES WITH AL <i>Gogulya M.F., Dolgoborodov A.Yu., Makhov M.N., and Brazhnikov M.A.</i>
3	NUCLEAR QUADROPOLE RESONANCE (NQR) SPECTRSCOPY STUDY OF RDX CRYSTAL IMPERFECTIONS AND ITS RELATIONSHIP TO SHOCK SENSITIVITY <i>S. M. Caulder, M. Buess, A. N. Garroway, and P. J. Miller</i>
4	SHOCK INITIATION CHARACTERISTICS OF ANFO EXPLOSIVE <i>Atsumi Miyake, Shigeki Mori, Yuji Wada, Yuji Ogata, Hiroyuki Arai, and Terushige Ogawa</i>
5	MISE AU POINT DE DEUX METHODES DE MESURE DE L'ATTENUATION DANS L'INFRAROUGE DE MATERIAUX PULVERULENTS <i>M. Regis and P. Lamy</i>
6	ETUDE DE CHAINES PYROTECHNIQUES D'INITIATION A EFFET RETARD FAISANT APPEL A DES COMPOSITIONS PYROTECHNIQUES « LENTES ET SANS GAZ » NE CONTENANT PAS DE SUBSTANCES DE TYPE CHROMATES. APPLICATIONS A UN DISPOSITIF D'AUTODESTRUCTION DE SOUS-MUNITION ET A L'ALLUMAGE DIFFERE DU DISPOSITIF D'AUTOPROPULSION D'UN PROJECTILE DE MORTIER. <i>M. Lesage, Cl. Perthuis, and P. Malbo</i>
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8	DYNAMIC SHOCK FRONT MEASUREMENTS AND ELECTRICAL MODELING OF THE EXPLODING GOLD BRIDGE WIRE IN A DETONATOR <i>Paul R. Wilkins, Alan M. Frank, Ronald S. Lee, and Chadd May</i>
9	DISPOSITIF OPTRONIQUE COMPACT D'AMORÇAGE D'EXPLOSIFS <i>F. Delmaire-Sizes, H. Ayrat, M. Doucet, P. Maruenda, and J. B. Favre</i>
10	INITIATEUR ELECTRO-PYROTECHNIQUE 1A-1W MINIATURISE <i>Muret Magali and Gramond Jean-Marie</i>
11	ETUDE DES EQUATIONS PHENOMENOLOGIQUES DE COMPRESSION ET APPLICATION A LA PYROTECHNIE <i>P. Lamy, L. Brunet, J. Caillard, F. Fédou, and R. Erre</i>
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31st Seminar 11-16 July, 2004
Fort Collins, Colorado, USA

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2	Determination of Thermal Ageing and Safety Analysis of a Double Phase Rocket Motor Propellant <i>B. Roduit, Ch. Borgeat, B. Berger, P. Folly, B. Alonso, J.N. Aebischer</i>
3	Thermal Study of Hexanitrohexaazaisowurtzitane (CL-20) <i>D.E.G. Jones, R. Turcotte, M. Vachon, Q.S.M. Kwok, and R.C. Fouchard</i>
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Karlsruhe, Germany

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29	The Pyrotechnic and Thermal Properties of Magnesium-Strontium Nitrate Pyrotechnic Compositions <i>I.M. Tuukkanen, T. T. Griffiths, E. L. Charsley, P. G. Laye, J. J. Rooney, (Finland & United Kingdom)</i>
30	A Preliminary Study of the Reaction of Potassium Dinitramide with Magnesium <i>E. L. Charsley, P. G. Laye, H. M. Markham, J. J. Rooney, B. Berger, P. Folly, T. T. Griffiths (Switzerland and United Kingdom)</i>
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32	<p style="text-align: center;">Thermal Behavior of Nitroglycerine <i>Masaru Nakahama, Katsumi Katoh, Shuhei Kawaguchi, Shiro Kubota, Yuji Wada, Yuji Ogata, Mitsuru Arai (Japan)</i></p>
33	<p style="text-align: center;">Thermal Decomposition Properties of Nitrocellulose and Its Mixtures with Nitroglycerin <i>R. Turcotte, B. Acheson, K. Armstrong, Q.S.M. Kwok, D.E. G. Jones, M. Paquet (Canada)</i></p>
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36	<p style="text-align: center;">On the Dependence of Critical Diameter and Velocity Decrement at Failure on the Burn Law <i>P. J. Haskins, M. D. Cook, A. D. Wood (United Kingdom)</i></p>
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43	<p style="text-align: center;">Comparison of Output and Sensitivity of Various Flash Compositions Commonly Used in Pyrotechnics <i>Joseph May, Joseph A. Domanico (United States)</i></p>
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50	Application of Advanced Kinetics and Finite Element Analysis in Computational Prediction of Thermal Ignition of Energetic Materials <i>B. Roduit, P. Folly, B. Berger, J. Mathieu, H. Andres, B. Vogelsanger (Switzerland)</i>
51	Detonation of Teflon-Based Mechanoactivated Energetic Composites <i>A. Yu. Dolgoborodov, I. V. Kolbanev, M. N. Makhov, A. N. Streletskii, V. E. Fortov (Russia)</i>
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54	An Effective Mitigation for Hydrogen Build-up in Ammunition Containers <i>R. P. Claridge, A. Parker, A. Hayden, R. C. Kullberg, M. Borghi, C. Boffito, S. Stewart, G. Lidyard (United Kingdom, Italy, United States)</i>
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57	Importance of Proper Evaluation of Decomposition Kinetics from Thermoanalytical Measurements for Predictions of Thermal Stability of High Energetic Materials <i>B. Roduit, P. Folly, B. Berger, J. Mathieu, H. Andres, B. Vogelsanger (Switzerland)</i>
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60	Using Fiber Optics to Determine Detonation Velocity During Surveillance Testing of the Sparrow Missile MK 38 MOD 2 Fuze Booster <i>Harry A. Farmer (United States)</i>
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62	Degradation Studies on Infrared Countermeasure Compositions <i>R. P. Claridge, T. T. Griffiths, E. L. Charsley, S. J. Goodall, J. J. Rooney (United Kingdom)</i>
63	Life Assessment of a Canopy Severance Device <i>G. T. Flegg, T. A. Vine (United Kingdom)</i>
64	Reaction Kinetic Modeling of Akardit II Depletion in Single Base Propellant Formulations <i>Eric R. Bixon, Lucas Lopez (United States)</i>
65	The Effects of Ageing on the Explosiveness of a Polymer Bonded Explosive <i>Peter A. Jemmett, Nigel Davies (United Kingdom)</i>

66	Recent Investigation of the Decomposition Mechanism and Thermal Stability of Nitrocellulose/Nitroglycerine Based Propellants <i>Anton Chin, Myong K. Ahn, Daniel Ellison, Sara K. Poehlein (United States)</i>
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68	Combustion Peculiarities of Mixtures of Barium Nitrate with Different Metals <i>N. M. Varyonykh, N. V. Obeziyaev, Yu. E. Sheludyak (Russia)</i>
69	Thermal Decomposition of the Nitrogen Containing Energetic Materials Metal Complexes <i>W. Kowhakul, M. Kumasaki, M. Arai (Japan)</i>
70	Effect of Loading Density and Nano Aluminum on Shock Sensitivity of Explosives <i>L. Kalontarov, Y. Iltoviz, Y. Borkowski, S. Dvir, Y. Mabari (Israel)</i>
71	Selected Observations on the Combustion of Charcoal Briquettes Utilized for the Outdoor Preparation of Food VIII. Evaluation of Aluminized-Steel Briquette Holders in the Alternative Cooking Method <i>James L. Austing (United States)</i>
72	UV-VIS Spectroscopic Investigation of Magnesium/Fluorocarbon Pyrolants <i>Ernst-Christian Koch, Volker Weiser, Eveline Roth, Dietmar Mueller (Germany)</i>
73	Propagation Mechanism of Low Velocity Detonation in Nitromethane <i>Hideki Hamashima, Yukio Kato, Shigeru Itoh (Japan)</i>
74	Performance Optimization of Propellant for Medium Caliber Ammunition <i>Dong-II Kang, Bong-Yeop Park, Jin-Ho Kim (Korea)</i>
75	Out-Gassing from Military Pyrotechnics - Problems & Solutions <i>J. Callaway, Dr. S. Singh (United Kingdom)</i>
76	Performance of Laser Ignition of Nanocomposite Energetic Materials Al/MoO ₃ <i>Zhang Rui, Xue Yan, Jiang Jun-cheng, Lei Xiao-Rong (China)</i>
77	Development of Tools for Testing Combustion Characteristics of Heat Pellets used in Thermal Batteries <i>Olga Shalev, Maxim Peterson, Irit Eliel, Assaf Zehavi, Sharona Melchior, Chaim Yarnitzky, Dario R. Dekel (Israel)</i>
78	Investigation of Electrostatic Charges and ESD Sensitivity of Energetic Nanopowders <i>Chris J. Bulian, Jan A. Puszynski (United States)</i>
79	Combustion Characteristics of Reactive Thin Film Initiated by Pulse Laser Ablation <i>K. Nagayama, A. Toyoda, S. Kubota, Y. Mitarai (Japan)</i>
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81	Synthesis and Characterization of Copper Azides on Porous Copper Substrates <i>Farhad Forohar, S. M. Caulder, Gerald R. Laib (United States)</i>
82	Modeling the Stress-Induced Non-linear Mechanical Response of Energetic FMC Material Systems <i>Yong Zhao, Liwei Lu, and Panos G. Charalambides (United States)</i>
83	Safety Issue in Munitions Containers Solved with the Use of Getters <i>Enea Ricci, Andrea Conte, Corrado Carretti, A. Hayden, R. C. Kullberg, R.P. Claridge, A. Parker, G. Lidyard, S. Stewart (United States)</i>

EuroPyro 2007, 9th International GTPS Seminar, 34th International Pyrotechnics Seminar

SUMMARY

Opening session

Energetic materials : "Our energy to shape your future"

G. Fonblanc (Propulsion General Manager) - SNPE Matériaux Energétiques

High energy condensed systems.

Pr. Y. Frolov - Semenov Institute of Chemical Physics

Session A1 : Nanotechnologies.

Safety and handling of nano-aluminium.

Miss R. Schaefer - ATK Launch Systems

Experimental method to study effect of nanometric particle oxide protection gun barrel against erosion.

Ms N. Forichon-Chaumet - Nexter Munitions

HTPB / AP propellant with nano-aluminium, demonstration of a new combustion process.

Ms C. Lanzarotti - ONERA

Explosive performance of alumized HMX-based nano-composites.

Dr A. Y. Dolgoborodov - Semenov Institute of Chemical

Session A2 : Nanotechnologies.

Combustion synthesis in gasless pyrotechnics at millimeter geometries.

Mr A. S. Tappan - Sandia National Laboratories

Hot spot modeling of thermite type reactions regarding particle size and composition.

Dr S. Kelzenberg - FICT

Research of the contribution of nano-particles in pyrotechnics.

Ms P. Lamy - Nexter Munitions

Session B1 : Shock wave and modeling.

Simple model for reacted and unreacted equation of states for energetic materials.

Dr K. Nagayama - Fac.of Eng. Kyushu Univer.

Molecular simulations of Hugoniot of detonation **products** mixtures at chemical equilibrium : Microscopic calculation of the Chapman-Jouguet state.

Dr E. Bourasseau - CEA / DAM-ID

Laser-induced decomposition of HNO₃/2 nitropropane mixture at static high pressure.

Dr E. Bouyer - CEA

Calculation of shock-adiabat of nitromethane with a hydrodynamic method.

Dr E. Bouton - CEA

Session A3 : Ageing and life-cycle.

Prediction of service life for the M864 base burner assembly.

Dr E. Bixon - Picatinny Arsenal

The effects of gaps between bridgefoils and PETN as a function of PETN density and **specific** surface area.

Mr D. F. Phillips - Lawrence Livermore National Laboratory

Stabilization of solid and liquid ADN-aluminum mixtures - Suitable stabilizing substances investigated by heat generation rate, mass loss and product analyses.

Dr M. Bohn - FICT

Lifetime study of a gas generating system.

Mr W.De Klerk - TNO

Advantages of simultaneous application of DSC and HFC for prediction of thermal stability of energetic materials.

Dr B. Roduit - AKTS

Estimation of the service life of an illuminating device.

Mr D. Medus - Lacroix

Session A4 : Safety assessment.

Effect of confinement on the thermal decomposition of ammonium perchlorate.

MR B. Longuet - ETBS

MBDA France safety methodology.

Ms M. Martin – MBDA

IM Rocket motors experiments in support of thermal or impact modelisations.

D.Idelot – Roxel

Tactical rocket motors IM demonstrators. Validation of concept to improve IM responses to thermal and bullet impact stimuli.

J.Nugeyre - Roxel

Session B2 : Detonation wave propagation.

Homogeneous shock initiation process in neat and chemically sensitized nitromethane.

Mrs B. Crouzet - CEA DAM

In-situ continuous detonation velocity measurements Using Fiber-optic Bragg Grating sensors.

Mr J. Benterou - Lawrence Livermore National Laboratory

A generalized dependence of detonation velocity on charge diameter including low velocity detonation.

Mr B. S. Ermolaev - Institute of Chemical Physics

Wave propagation in non monotonous Sound speed materials.

Dr O. Heuze - CEA/DIF

Session A5 : Sensitivity and explosiveness.

Behaviour of AN-based emulsions in hot-wire ignition experiments.

Dr R. Turcotte - Canadian Explosives Research Laboratory

Ability of the fire propagation apparatus to characterise thermal effects of energetic materials.

Mr H. Biteau - University of Edinburgh

Reactive simulations of benzene under shock conditions

Dr J. B. Maillet - CEA/DAM

New chemical gas sensors for explosives detection.

Dr P. Prené - CEA

TEMPER software from V1.0 to V2.0.

Mr E. Lababie - DGA

Session B3 : Detonation wave propagation.

Enhanced underwater charges based on metal-rich combustible or detonable mixtures : internal and external ballistics.
Mr P. V. Komissarov - Institute of Chemical Physics Academy

Multiphase detonation theory : Application to nano-structured energetic materials.
Dr O. Le Matayer - Polytech Marseille

Evaluation of the ignition and deflagration-to-detonation characteristics of CL-20 using a laser hot plate configuration.
Dr E. J. Welle - Sandia National Laboratories

Session A6 : Characterisation and measurement.

The measurement and analysis of detonation pressure during blasting.
Mr Mencacci - Nitrochimie

Modelling of aluminised solid propellant fire induced by the pneumatic explosion of a large rocket motor.
Mr F. Chassagne - CAEPE

Development of small scale tests to evaluate the Shock sensitivity of cast PBX compositions.
Ms C. Collet - SNPE Matériaux Energétiques

A small scale performance test for HE.
Mr A. Lefrançois - DGA

Industrial acceptance firing test mean (MIR) for end tip boosters and transfer detonating lines.
Mr P. Chabin - SNPE Matériaux Energétiques

Session A7 : Environmental friendly products.

P₄primer™; RED Phosphorus Fueled Non-toxic, Heavy Metal-free Primer for Small Arms Cartridges.
Mr R. Busky - ATK Lake City Ammunition Division

Perchlorate free flash powders and their application in the M117 flash Booby trap simulator.
Mr G. Chen - Picatiny Arsenal

Development of an environmentally benign black smoke formulation for pyrotechnic use.
MS G. Raibeck - Picatiny Arsenal

Lead-free detonating lines and linear shaped charges.
Mr A. Chartier - Pyroalliance

Imaging nitrocellulose and its potential interaction with plasticizers by scanning probe microscopy.
Dr D. Spitzer - ISL/CNRS

Session A8 : New Production and safety design methods.

A flow time model for melt-cast insensitive explosive process.
Mr J. P. Guillemin - NEXTER Munitions

Predicting and evaluating performance of energetic salts : models and theoretical tools.
Mr P. Simonetti - CEA

Overview of recent progress in the prediction of the thermodynamic properties and stability criteria of energetic materials.
Dr D. Mathieu - CEA

Reliability demonstration of Pyrosoft release nut
Mr P. Thebault - Etienne Lacroix

Development of a QSPR method for the prediction of chemicals explosibility.
Mr G. Fayet - ENSCP

Session A9 : New safety methodologies and regulations.

An analysis of test methods on physicochemical stability and compatibility of high energetic materials on the basis of current polish standards.

DR M. Miszczak - Military Institute of Armament Technology

EU directive on the placing on the market of pyrotechnic articles.

Mr M. Brochier - INERIS

A modern goal-oriented risk-based concept for the safety assessment of the handling of ammunition, explosives, pyrotechnics and propellants.

Mr A. F. Bienz - Bienz Kummer & partner ltd

Session A10 : Optical pyrotechnic initiation.

Overview of recent developments of laser initiated detonator for space applications.

Mr D. Dilhan - CNES

Studies on working time reproductibility of a laser ignited detonator.

Mr H. Moulard - ISL

Solid-state laser initiation system for defense application.

Mr A. Marchand - TDA

Potential use of optopyrotechnic technology for launch vehicle applications.

Mr P. Farfal - EADS

Session B4 : Behavioural law in explosive materials

Molecular dynamics study of tantalum spallation.

Mr L. Soulard - CEA DAM

Hugoniot of nitric acid. A molecular simulation study.

Dr N. Desbiens - CEA/DAM-ID

Formal characteristics of aluminum burning rate law in non-ideal detonations of ammonium nitrate based mixtures.

Mr P.V.Koissarov - Institute of Chemical Physics Academy

A multiphase model for heterogeneous explosives containing liquids and aluminum particles.

Dr G.Baudin - DGA/DET

Session A11 : Optical

From RS-RDX to VI-RDX : a new step.

Mr L. Borne - ISL

The problem of excitation of the abnormal-unstable physical fields and **existential** micro-structures in the burning wave of the energetic materials.

Dr A. N. Lukin - Institute of Applied Mechanics

Selection and testing of thermite compositions for pyrotechnic devices.

Dr A. Pivkina - Semenov Institute of Chemical

Pyroorganic flares - A new approach for aircraft protection

Mr V. Weiser - FICT

Session B5 : Behavioural law in explosive materials

A thermodynamic model for reliably predicting the detonation properties of explosives.

Prof.S.A.Gubin - Moskow Engineering Physics Institute

A multiphase model for liquid dispersion under explosion conditions.
Dr J.Massoni - Polytech Marseille

Contact-free characterization of materials used in detonics experiments.
Mr G.Besnard - CEA/DAM

POSTERS SESSION

Thermal Batteries as electrical power sources for pyrotechnic devices.
Mr P. Jakubowski - ASB

Analysis by separative technologies and solid phase extraction of high explosives.
Mr J. C. Meunier - TDA

Performance characteristics of the M119 whistling booby trap simulator formulation as a function of percent composition.
Mr R. M. Hartley - US Army RDECOM-ARDEC

Spectroscopic investigation of deuterated flare compositions.
Mr E. C. Koch - Diehl BGT Defence

Laminac 4116 binder replacement for hand held signal illuminant compositions.
Mr G. Chen - Picatiny Arsenal

An approach to building an accurate and computationally efficient equation of state model of condensed explosives for hydrocode simulations.
Dr O. Heuzé - CEA/DIF

Perchlorate elimination in the M118 illuminating Booby trap simulator.
Mr M. Motyka - US Army ARDEC

New versatile facility, based on twin screw extruder for manufacture of new energetic.
Ms C. Marraud - SNPE

Studies on illuminating compositions for high altitude applications.
Mr R. S. Palaiah - High Energy Materials Research Laboratory

Automated casting line for projectiles.
Mr B. Mahé - EURENCO

Thermocinetic simulation tool and applications.
Mr D. Michelot - ASTRIUM Space

Separation systems by expanding tube-adaptation to the small launchers.
Mr T. Kister - ASTRIUM Space

Structural and reactive study of an aged nanodiamond-based energetic composition.
Dr M. Comet - ISL/CNRS

High pressure Raman spectroscopy study of HNO₃/2-Nitropropane mixtures. Influence of the composition.
Dr P. Hebert - CEA

On the charge diameter effect in 2-nitropropane/nitric acid mixtures.
Mrs L. Pagnanini - ENSMA

Detonation in packed beds of metal particles saturated with nitromethane.
Dr Y. Kato - Nippon Koki Co Ltd

Mechanical behaviour of nanomaterials for energetic compounds.
Mrs P. Lamy - Nexter Munitions

Combined experimental and numerical analysis of a linear cutting charge.
Ms F. Meyer-Lassalle - CNES

Experimental investigation and modelling of fire exposure of a steel tank structure.
Mr F. Saulnier - Nexter Munitions

Improving HTPB propellant mechanical properties.
Mr M. Kivity - IMI

Low-velocity impact tests on an HMX-based explosive.
Mr F. Delmaire-Sizes - CEA

Exploding-based expanding model for smoke projectile.
Mr C. G. Zhu - University of Science and Technology

GTPS work group on optical initiation of energetic materials.
Mr A. Marchand - GTPS

Technological breakthrough in Safety and Arming Unit.
X. Vilars - Nexter Munitions

IM Rocket motors experiments in support of thermal or impact modelisations.
L. Texier – Roxel

Enriching carbon nanotubes with energetic materials
F Forohar- NSWC

35th Seminar 13-18 July, 2008

Fort Collins, Colorado, USA

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2	Environmental Assessment of Pyrotechnic Combustion Products <i>Paul D. Howe, Stuart Dobson, Heath M. Malcolm, Trevor T. Griffiths (UK)</i>
3	Pyrotechnic Self-Assembly (PSA) Manufacture Process using Fluidized Bed UV Coating Technology <i>G. Chen, M. Motyka, C. Wan, C. Lu (USA)</i>
4	Inorganic Barrier Coating for the Protection of Magnesium Powder Against Humidity-Based Aging <i>T. J. Gudgel, F. Chapman, S. Sambasivan, T. Gillard, C. Wilharm, B. Douda (USA)</i>
5	Combustion Performance of Coated Magnesium <i>Caroline K. Wilharm (USA)</i>
6	Ageing of Magnesium Coated with Viton <i>James Callaway, Nigel Davies (UK)</i>
7	European Directive 2007/23/EC on the Placing on the Market of Pyrotechnical Articles: Are You Concerned? <i>Lionel Aufauvre (France)</i>
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8	Nano-Aluminum Powder Doped with Barium: Chemical States of Ba and Al Studied by X-Ray Photoelectron Spectroscopy <i>Konstantin Monogarov, Alla Pivkina, Elena Skryleva, Yu. Frolov (Russia)</i>
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9	Using a Standard Test Protocol to Qualify Candidate Low Toxicity Colored Smoke Dyes <i>Joseph A. Domanico (USA)</i>
10	Characterization of Magnesium Carbonate for Use in Pyrotechnic Smoke Compositions as a Thermal Regulator <i>Christopher Fish, Gary Chen (USA)</i>
11	Demonstration of an Environmentally Benign Pyrotechnic Black Smoke in a Battlefield Effects Simulator <i>Gretel Raibeck, Catherine Kislowski, Gary Chen (USA)</i>
12	Assessment of Organic Fuels for Use in Environmentally Benign Colored Smoke Formulations <i>Gretel Raibeck, Gary Chen (USA)</i>
13	Preliminary Results of an Investigation into the Use of Polymeric Binders in Pyrotechnics (PBP) <i>M. G. Morgan, R. A. Pietrobon, M. B. Stringer, A. Provatas (Australia)</i>
14	Precursor Studies of Energetic Binders for High Energy Pyrotechnic Compositions <i>Robert P. Claridge, T. A. Vine (UK)</i>
15	Studies on Fluoro Polymer Based Compositions for Advanced IR Flares <i>R. S. Palaiah, V. P. Ambekar, D. K. Jawale, M. J. Kohadkar, K. C. Raha, Amarjit Singh (India)</i>
16	Versatility of Novel Low Viscosity Thermoset Binder in Pressed and Cast Illuminant Applications

	<i>Heather M. Peterson, Dan B. Nielson, Curtis W. Fielding, Richard L. Tanner (USA)</i>
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18	Impressive Change of Reactive Properties of High Explosives Structured and Stabilized at Nano-Scale in an Inert Porous Matrix <i>Marc Comet, Benny Siegert, Vincent Pichot, Denis Spitzer, F. Ciszek, Nelly Piazzon, Pierre Gibot (France)</i>
19	Nanothermites with Condensable Gas Products <i>Curtis Johnson, Kelvin Higa, Rick Albro (USA)</i>
20	Influence of Particle Sizes on the Properties of Mechanoactivated Al/MoO ₃ Thermite Mixtures <i>A. Yu. Dolgoborodov, A. N. Streletskii, I. V. Kolbanev, M. N. Makhov (Russia)</i>
21	Investigations into MEMS Scale Detonators <i>Robert P. Claridge, T. A. Vine, A. J. Leggett (UK)</i>
22	Microenergetics: Characterization of Sub-Millimeter PETN Films <i>Ryan R. Wixom, Alexander S. Tappan, Gregory T. Long, Anita M. Renlund, Eric J. Welle, Joel P. McDonald, Bradley H. Jared, Aaron L. Brundage, Joseph R. Michael (USA)</i>
23	Lead Azide Reactions at Sub-Millimeter Diameters <i>Peter C. Jung, Alexander S. Tappan, and Eric J. Welle (USA)</i>
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25	Probabilistic "Limited Hot Spot" Detonation Model of Ammonium Nitrate Based Explosives <i>Alexander Yu. Reshetnyak (Russia)</i>
26	Effect of Particle Size on Detonation of Packed Bed of Aluminum Particles Saturated with Nitromethane <i>Yukio Kato, Kenji Murata, Eiji Yano, Shinichi Matsuzaki, Yoshimasa Suzuki (Japan)</i>
27	Underwater Explosions - Effects of Cylindrical Shape of Charge to the Results of Energy Measurements of Explosives <i>Martti Hagfors (Finland)</i>
28	Novel Synthesis of 3,3-Diaminoazoxyfurazan (DAAF) and a Survey of Performance Testing and Characterization <i>Elizabeth Francois, David Chavez, Bryce Tappan, Dan Hooks (USA)</i>
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29	Potassium Dinitramide as a Pyrotechnic Oxidant for Red Flare Applications <i>R. P. Claridge, T. T. Griffiths, N. A. D. Johnson (UK)</i>
30	Nonlethal 40mm Flash-Bang Devices with Fuel-Rich Flash Powders <i>R. H. Newell, L. S. Liu, R. J. Blau, B. Solomon, P. C. Cannon, N. L. Grossman, K. Jones (USA)</i>
31	Product Improvements on the Thermate Incendiary Grenade <i>Jessica Horning, Gary Chen (USA)</i>
32	New Pyrotechnic Compositions for Incendiary Ammunition Applications <i>T. T. Griffiths, E. L. Charsley, J. J. Rooney, H. M. Markham (UK)</i>
33	Methods of Computational Chemistry in Search for Structure-Properties Relationships among Energetic Materials

34	Tatyana S. Pivina, M. S. Molchanova, V. L. Korolev, Yu. N. Matyushin, A. A. Porollo, V. P. Ivshin, N. I. Zhokhova (Russia)
KINETICS AND THERMAL ANALYSIS	
35	Non-Isothermal Kinetics of Fast High-Temperature Reactions in Condensed Energetic Materials <i>Alexander S. Shteinberg, A. A. Berlin (USA, Russia)</i>
36	Application of Advanced Kinetics to HFC Signals for the Life-time Prediction of Energetic Materials <i>Bertrand Roduit, P. Guillaume, S. Wilker, P. Folly, A. Sarbach, B. Berger, J. Mathieu, M. Ramin, B. Vogelsanger (Switzerland)</i>
37	Detonation Calorimeter Characterization of Selected Explosive Compositions <i>Scott D. Hall, Andrew R. Davis, Gregory D. Knowlton (USA)</i>
38	Thermal Studies on Rubidium Dinitramide <i>E. L. Charsley, P. G. Laye, H. M. Markham, J. J. Rooney, B. Berger, T. T. Griffiths, M. P. Wasko (Switzerland, UK)</i>
COMBUSTION CHARACTERISTICS	
39	Secondary Combustion Phenomenon of B/KNO ₃ Ignited by Laser <i>Ye Yinghua, Gong Jingmei, Shen Ruiqi, Hu Yan, Wang Zigeng (China)</i>
40	Crack Behavior in Solid Propellant Grain as a Function of Ignition Pressure Gradient <i>A. Shtark, N. Haron, H. Grosbein, J. Kanelbaum (Israel)</i>
41	Prediction of Usetime of Three Differently Stabilized Propellants <i>Manfred A. Bohn (Germany)</i>
42	Minimum Pressure for Sustained Combustion in AN-based Emulsions <i>Sandra Goldthorp, R. Turcotte, C. M. Badeen, S. K. Chan (Canada)</i>
43	Burning Characteristics of Guanidinium 1,5'-bis-1 H-Tetrazolate/Metal Oxide Mixtures as Candidate Gas Generating Agent <i>S. Date, T. Sugiyama, N. Itadzu, Y. Miyata, M. Abe, K. Yoshitake, S. Nishi, K. Hasue (Japan)</i>
44	Unusual Behaviors of Low Temperature Silver Nitrate/Molybdenum Based Autoignition Materials <i>Christian W. Salafia, Scott D. Hall, Gregory D. Knowlton (USA)</i>
45	Effects of CuO, Cu, and MnO ₂ on Combustion of Ammonium Nitrate/Aminoguanidinium 5,5'-azobis-1 H-tetrazolate Mixtures <i>Yasuyoshi Miyata, Masahiro Abe, Shingo Date, Makoto Kohga, Kazuo Hasue (Japan)</i>
46	Combustion Characteristics of Reactive Thin Film Ignited by Pulse Laser Ablation <i>Yuji Utsunomiya, Akihiro Toyoda, Takashi Kajiwara, Takashi Nishiyama, Kunihito Nagayama, Shiro Kubota, Yoshinori Yamada, Yoshiaki Mitarai (Japan)</i>
47	Atomization Characteristics of Energetic Liquid Film by Pulse Laser Reflection at Inclined Surface of High Refractive Index Material <i>Takashi Kajiwara, Yuji Utsunomiya, Takashi Nishiyama, Kunihito Nagayama, Shiro Kubota, Motonao Nakahara (Japan)</i>
AGING AND TOXICITY	
48	Lifetime Study on the Pyrotechnic Parts of a Munitions Article <i>Wim de Klerk, Beat Berger, Paul van Ekeren (Netherlands, Switzerland)</i>
49	Accelerated Aging of the M206 Countermeasure IR Flare <i>Eric R. Bixon, Russell Broad, June DeSalvio, Frank Gagliardi, Amita Nagori, Jay Poret, Andrew Zimmer (USA)</i>

50	An Investigation into the Chemistry of Propellant Stabilizers and Ballistic Modifiers during Aging of Nitrocellulose/Nitroglycerine <i>Mohammad H. Sammour, Ph.D (Egypt)</i>
51	A Historical and Contemporary Comparison of Frankford Arsenal Formula 675 and ATK's P4rimer™; Red Phosphorus Fueled Primers for Small Arms Cartridges <i>Randall Busky (USA)</i>
52	Elimination of Perchlorate Oxidizers from Pyrotechnic Red Signal Flare Compositions <i>Robert G. Shortridge, Christina M. Yamamoto (USA)</i>
53	Evaluation of Candidate Low Toxicity Colored Smoke Dyes <i>Giancarlo Diviacchi (USA)</i>
SENSITIVITY, SAFETY, AND IM	
54	Probit Analysis of Friction Sensitivity of Explosives <i>Sek K. Chan and R. Turcotte (Canada)</i>
55	The Effect of Processing Parameters on Ignition Characteristics and ESD Sensitivity of Nanothermites <i>Chris J. Bulian, Jan A. Puszynski, Jacek J. Swiatkiewicz (USA)</i>
56	Safety in Explosive and Pyrotechnic Manufacture <i>N. V. Srinivasa Rao (India)</i>
57	On the Sensitivity of Pyrotechnic Countermeasure Ammunitions <i>Ernst-Christian Koch (Belgium)</i>
58	Insensitive Gun Propellants with Low Temperature Coefficient Based on DNDA <i>Dietmar Mueller (Germany)</i>
POTPOURRI	
59	Imaging Different Nitrocellulose Grades by Scanning Probe Microscopy <i>Denis Spitzer, N. Piazzon, M.R. Schaefer, V. Pichot, M. Comet (France)</i>
60	Novel Understanding of the Phenomenon of Negative Erosion and Existential Instability of the Physical Fields in the Burning Wave of the Energetic Materials <i>Alexander N. Lukin (Russia)</i>
POSTERS	
61	Thermal Parameters of the Burning Wave for Barium Nitrate/Magnesium/Organic Additive Pyrotechnic Mixtures <i>N.M. Varyonykh, N.V. Obeziyaev, Yu. E. Sheludyak (Russia)</i>
62	Selected Observations on the Combustion of Charcoal Briquets Utilized for the Outdoor Preparation of Food IX. Effect of Briquet Type, Weight, and Size on the Kettle Internal Temperature <i>James L. Austing (USA)</i>
63	Underwater Explosions: Effects of Cylindrical Shape of Charge to the Energy Measurements of Explosives <i>Martti Hagfors (Finland)</i>
64	Fire Test on Fireworks Storage Container <i>M. K. Hihkiö, M. J. Ojala (Finland)</i>
65	The Impact Endurance of Hot Bridge Wire Type K13 Electric Detonator <i>Ki Geun Song, Moon Ho Lee, Jin Rai Cho (S. Korea)</i>
66	Developing a Technology Roadmap for Cartridges, Cartridge Actuated Devices and Propellant Actuated Devices in Aircraft Systems

	<i>F. J. Valenta (USA)</i>
67	Development of Pyrotechnically Releasable Mechanical Linking Device <i>YeungJo Lee, DongJin Kim (S. Korea)</i>
68	Ecoregion Approach for Development of the Integrated Marine Area Space in Decentralization Era (Towards Sustainable Marine Area Development) <i>Dian Prihadyanti, Prakoso Bhairawa Putera S. (India)</i>
69	Premature Explosion of an Oil Well Simulation Test <i>C. James Dahn (USA)</i>
70	New Morphology of Composite Powders <i>X.H. Xie, H.S. Zhou, S.L. Yan, W.Y. Huang, W. Luo, X.J. Li (China)</i>
71	MSDS Autoignition Temperature and Fire Hazard <i>Abdollah Kashani, C. James Dahn (USA)</i>
72	Synthesis, Combustion Regularities and Impact Sensitivities of Hydrazinnitramines Salts and Their Mixtures with Ammonium Perchlorate <i>N.F. Pyatakov, I.B. Vyunova, S.S. Novikov (Russia)</i>
73	Quantitative Structure-Property Relationship Studies for Predicting Explosibility of Nitroaromatic Compounds <i>G. Fayet, P. Rotureau, L. Joubert, C. Adamo (France)</i>
74	Extending the Use of the Fire Propagation Apparatus to Qualify Burning Scenarios of Energetic Materials and Oxidative Properties of Chemicals <i>Guy Marlair, H. Biteau, R. Branka, J. Torero (France)</i>
75	The Effect of Burning Rate Catalysts on Composite Propellants Containing Nanosized Aluminum <i>Abraham Shalom, Hadassah Aped, Moshe Kivity (Israel)</i>
76	Magnesium/Xenon(II) fluoride (MAX) – A New High Energy Density Material <i>Ernst-Christian Koch, Volker Weiser, Evelin Roth, Stefan Kelzenberg (Belgium, Germany)</i>
77	Evaluation of Encapsulated Red Phosphorus in Marine Signal Munitions <i>Peter Jemmett, Kevin Patel, Jim Callaway (UK)</i>
78	A very efficient pyrotechnic aerosol flame suppressant <i>P. Posson (USA)</i>
79	Combustion Characteristics of Condensed-Phase Reactions in Sub-millimeter Geometries <i>L. J. Groven, J. A. Puszynski, A. S. Tappan (USA)</i>
80	HDRI Photo-real Procedural Modeling & Animation of Combustion Mechanisms <i>M. J. Prusten (USA)</i>
POST-PRINT PROCEEDINGS SUBMITTALS (CD-ONLY)	
81	Influence of Nano-Sized Components on Ballistic Properties of Heterogeneous Condensed Systems <i>Yu. V. Frolov (Russia)</i>
82	Investigating Potential Sources of Environmental Perchlorate Contamination <i>J. C. Oxley, J. L. Smith, J. Moran, C. Higgins, P. Bowden (USA)</i>
83	Flash Powder Electrostatic Ignition and Propagation <i>C. J. Dahn, A. Kashani, J. Gribbins, A. Kusmierz, B. N. Reyes (USA)</i>
84	MSDS Autoignition Temperature and Fire Hazard <i>Abdollah Kashani, C. James Dahn</i>

**36th Seminar – August 23-29, 2009
Rotterdam, The Netherlands**

Invited speakers

I-1	GENESIS of INFRARED DECOY FLARES: A summary of the early years from 1950 into the 1970s <i>B.E. Douda</i>
I-2	Nano-aluminium powder doped with barium: Chemical states of Ba and Al studied by X-ray photoelectron spectroscopy <i>K. Monogarov, A. Pivkina E.Skryleva, Y. Frolov</i>
I-3	Multimedia Mass Balance Approach to Estimation of Pyrotechnic Emissions <i>B. Schwegler</i>
I-4	Environmental Aspects of Energetic Materials <i>N. van Ham, W. Duvalois, D. Meuken</i>
I-5	Pyrotechnics - from Black Powder to Nanometric Compositions <i>Beat Berger</i>
I-6	Particle size and mixing technology influence on combustion of HMX/Al compositions <i>N. Muravyev, Y. Frolov, A. Pivkina, K. Monogarov, D. Ivanov, D. Meerov, O. Ordzhonikidze</i>
I-7	Frank Caver Bursary 2009: Phosphorus-based nanothermites: a new generation of pyrotechnics illustrated by the example if n-CuO / red P mixtures <i>M. Comet, B. Siegert, V. Pichot, O. Muller, Y. Suma, F. Ciszek, D. Spitzer</i>
I-8	Coloring Properties of Various High Nitrogen Compounds in Pyrotechnic Compositions <i>T.M. Klapötke, H. Radies, J. Stierstorfer K. Tarantik, G. Chen</i>
Session A: Flares	
A-1	Enhanced Near Infra-Red Illuminating Compositions <i>P.A. Jemmett and K. Patel</i>
A-2	Estimation of the Shelf Life of the M206 Flare <i>E.R. Bixon, R Broad, J. DeSalvio, F. Gagliardi, A. Nagori, J. Poret, A. Zimmer</i>
A-3	Thermal Parameters of the Burning Wave for Sodium Nitrate / Magnesium / Organic Additive Pyrotechnic Mixtures <i>N.M. Varyonykh, N.V Obezyaev, Yu.E. Sheludyak</i>
A-4	Is it possible to Obtain a Deep Red Pyrotechnic Flame Based on Lithium? <i>E-C. Koch, C. Jennings-White</i>
Session B: Ageing	
B-1	The Storage Aging Analysis of Electric Initiator by Aging Test <i>Zhang Rui, Li Geng, Li Fang, Fu DongXiao</i>
B-2	Equivalent time-temperature loads for accelerated ageing to simulate in-storage ageing and time-temperature profile loads <i>M. A. Bohn</i>
B-3	The Impact of Temperature on Measurement of Smoke Transmittance <i>ZHU Chen-guang, LÜ Chun-xu</i>
Session C: Explosives	
C-1	Linear Actuation Using Milligram Quantities of CL-20 and TAGDNAT <i>A.S. Tappan, M. Basiliere, J.P. Ball, S. Snedigar, G.J. Fisher and J. Salton</i>
C-2	Blast Effects of Cased Explosives in a Two-Room Structure <i>W. Wilson, L.V. Benningfield, K. Kim</i>
Session D: Safety & Environment & Toxicity	
D-1	Evaluating Various Pyrotechnic Compositions as a Substitute for Black Powder in an Ignition Transfer Role <i>J. A. Domanico</i>
D-2	Alternates to Lead Azide and Lead Based Materials – Green Replacement <i>N. Mehta, R. Damavarapu, G. Cheng, T. Dolch, J. Rivera, R. Duddu, K. Yang</i>

D-3	Perchlorate Elimination in M126A1 Red Star Signal Composition <i>S.K. Pliskin, R.G. Shortridge and C.M. Yamamoto</i>
D-4	Formulation & Development of an Explosive That Allows Conventional 155mm Projectiles to Achieve IM Status <i>S. Singh, P. Samuels, A. Di Stasio, B. Fishburn, P. Vinh</i>
D-5	Influence of Physical Characteristics and Ingredients on the Minimum Burning Pressure of Ammonium Nitrate Emulsions <i>R. Turcotte, S. Goldthorp, C.M. Badeen, C. Johnson, H. Feng and S.K. Chan</i>
D-6	Development of harmonized European Standards for Pyrotechnic Articles <i>J. Leenders, D.Eckhardt, S. Petralia, J. Perriam, T. Smith, Y. Fournier, P. Thebault</i>
D-7	Waves of Negative Erosion and Ballistic Efficiency of the High-Loading-Density Solid Propulsion Systems <i>A.N. Lukin</i>
Session E: Energetic Materials	
E-1	Comparison of behaviour of 3 samples of nitrate based powders to classic black powder <i>C. Rivière, R. Branka, M.A. Kordek</i>
E-2	Burning Characteristics of Some Guanidinium 1,5'-bis-1H-Tetrazolate/Ammonium Nitrate/Additive Mixtures <i>S. Date, S. Nishi</i>
E-3	Laser Ignition of GUDN (FOX-12) - Facilitation by an Energetic Polyphosphazene Binder <i>R. Ahmad, P. Golding, J. Padfield and A. Russell</i>
E-4	Effect of initial temperature on the burning rate of some mixtures of tetrazoles and nitrates <i>K.Yoshitake, K.Ihoh, S.Date, K.Hasue</i>
Session F: Nano Materials / Applications	
F-1	Coating of energetic materials in a fluidized bed plasma reactor <i>A.E.D.M. van der Heijden, Y.L.M. Creighton, R.J.E. van de Peppel, E. Abadjieva</i>
F-2	Thermite Type Reactions of Different Metals with Iron-Oxide and the Influence of Pressure <i>V. Weiser, E. Roth, A. Raab, M. Juez-Lornezo, St. Kelzenberg</i>
F-3	Nanothermites for pyrotechnic heaters <i>K. Monogarov, A. Pivkina, Yu. Frolov, N. Muravyev, O. Ordzhonikidze</i>
F-4	Methods for Proving the Equivalency of Detonator Performance <i>A. Munger, A. Akinici, K. Thomas, S. Clarke, E. Martin, M. Murphy</i>
F-5	Design of igniting bridge of MEMS array and modeling the ignite process <i>Ye Yinghua, Shenruiqi, Huyan, Zhu peng</i>
Session G: Diagnostics	
G-1	The Application of a Schlieren Diagnostic to the Behavior of Exploding Bridge Wire and Laser Detonators <i>M. Murphy, S. Clarke, A. Munger, K. Thomas</i>
G-2	Gel permeation chromatography of nitrocellulose (NC): Results from an analytical parameter study <i>H. Pontius, M. Dörich, M.A. Bohn</i>
G-3	New characterization of TATB by solid state NMR and surface techniques <i>S. Quéré, P.Palmas, A. Forzy, E. Girard, L. Hairault</i>
Session H: Modeling & Miscellaneous	
H-1	Smoke Countermeasures for Army in the Visual and Infrared <i>K. Smit, A. Lee, and M. Burrige</i>
H-2	Pyrotechnic Incendiary Compositions <i>T.T. Griffiths, E.L. Charsley, J.J. Rooney, H.M. Markham</i>
H-3	Mechanisms of Formation of Droplets in the Processes of Explosive Dispersion <i>Hong Tao, Yao Wen, Wang Pei, Han Yong</i>
H-4	Modeling and Simulation of Melt Cast explosives <i>A.Di Stasio, S. Singh, P. Samuels, B. Fishburn</i>

H-5	Comparison of Thermochemical Codes: CERV, CHEETAH, EKVI, EXPLO, ICT, NASA-CEA, REAL, THOR <i>E.-C. Koch, V. Weiser, R. Webb</i>
Poster Session	
P-1	The ageing study of coloured smokes <i>M.K. Hihkiö, A-M.Salomäki</i>
P-2	Aging of 1,1'-(1,3-Diphenylene Dicarboxyl) bis 2-Methyl-Aziridine (Dynamar™ HX-752 of 3M) Bonding Agent <i>H. Aped, A. Shalom, M. Kivity</i>
P-3	The Effect of High Temperature on the Friction Sensitivity of Composite Propellants <i>A. Shalom, H. Aped, M. Kivity</i>
P-4	Pyrophoric hybrid systems based on α -iron, aluminum, and silicon <i>S. Hasan, Z. Doorenbos, J. Puszynski, D. Kapoor, C. Haines and D. Martin</i>
P-5	EMC 3.8 - Energetic Materials Compendium - A Tool for Research, Development & Design <i>E-C. Koch</i>
P-6	Computational Characterization of 1,1,1,4,4,4-Hexanitrobut-2-yne and its Derivatives <i>E-C. Koch</i>
P-7	Toward an understanding of strobe reactions <i>J.M.L. Corbel, J.N.J. van Lingen, J.F. Zevenbergen, A. Meijerink</i>
P-8	In vitro toxicity screening of colored smokes <i>M. Polhuijs, M. Alblas, J. Makkus, J. van der Meer, R. Mars-Groenendijk, R. Groeneveld, M. Norbert, J. Langenberg and J. van Lingen</i>
P-9	Evaluation of health and environmental risks associated with the life-cycle of Tungsten-based ammunition <i>J. Langenberg, L. van der Horst, J. Carol-Visser, N. le Grand, O. ter Elst, B. Lander, F. Brekelmans</i>
P-10	Development of DBX-1, a Non-Toxic Lead Azide Replacement <i>Magdy M. Bichay, Frank J. Valenta</i>
P-11	Perchlorate Elimination in M274 2.75" Practice Rocket Warhead Smoke Charge <i>G. Chen</i>
P-12	Chemical analysis during lifecycle of munition; from Cradle-to-Grave <i>M. van Hulst, W.P.C. de Klerk</i>
P-13	Co-extrusion of gun propellants <i>C.A. van Driel and M. Zebregs</i>
P-14	Temperature and pH Influence on Cellulose and Polyacrylonitrile Shelf Life <i>A. Stefanescu, C. Popescu, A.E.D.M. van der Heijden, W. P. C. de Klerk</i>

37th Seminar – May 17-19, 2011

Reims, France

Session S1a - Energetic materials and molecules

Chair-persons:

Sara PLISKIN, Naval Surface Warfare Center, Crane

Pierre THEBAULT, E. Lacroix

First Insight into Strobe Reactions

Corbel, J.M.L.; Lingen, J.N.J.; Zevenbergen, J.F.; Meijerink, A.; Gijzeman, O.L.J.

Utrecht University; TNO Security and Safety

Effect of Formulation Changes on the Minimum Burning Pressure of Ammonium Nitrate Emulsions

Badeen C.*, Goldthorp S*, Turcotte R.*, Feng H*, and Chan S.K.**

*Canadian Explosives Research Laboratory, Ottawa, Ontario, Canada; **Orica Canada Inc., Brownsburg-Chatham, Quebec, Canada

<p align="center">Metal Fluorocarbon Pyrolants XII. Combustion Behaviour of Binary Pyrolants based on MgH₂, MgB₂, Mg₃N₂, Mg₂Si and Polytetrafluoroethylene Ernst-Christian Koch (a), Volker Weiserb, Evelin Roth (b) a) NATO-MSIAC, b) Fraunhofer-ICT</p>
<p align="center">50yrs of Blackpowder & Safety Fuse manufacture In South Africa Gordon Morgan AEL Mining Services, South Africa</p>
<p align="center">Combustion of Various Metal Particles in Combination with RDX and the Influence of Additional Air V. Weiser*, E. Roth, A. Raab, St. Kelzenberg, S. Knapp, W. Eckl Fraunhofer Institut für Chemische Technologie ICT; 76327 Pfinztal, Germany</p>
<p align="center">Development and characterisation of a based TNT 1M explosive composition XF11585. Applications for the 60 mm to 120 mm caliber range C. COULOUARN*. P. LAMY-BRACQ. S. BULOT NEXTER Munitions, France</p>
<p align="center">Session S1b - Energetic materials and molecules Chair-persons: Rutger WEBB, TNO Defence, Security and Safety Bernie DOUDA, Naval Surface Warfare Center, Crane</p>
<p align="center">Explosive strategy at NEXTER Munitions R. AUMASSON, P. LAMY-BRACQ, C.COULOUARN NEXTER Munitions, France</p>
<p align="center">B2514A: a Novel Enhanced Blast Explosive C. Collet, M. Dervaux, M. Werschine SNPE Matériaux Energétiques, FRANCE</p>
<p align="center">Detonation-like Processes in Mechanoactlvated Thermite Mixtures A.Yu. Dolgoborodov, M.N. Makhov, A.N. Streletskii, I.V. Kolbanev, S.L Guseinov ICP RAS</p>
<p align="center">ZPP with reduced sensitivity J.M DARRIGRAND NEXTER Munitions, France</p>
<p align="center">Boron and boron carbide pyrotechnics for green light emission Jay C. Poret, Ph.D., Jesse J. Sabatini, PhD., Phillip Chu, and Russell Broad US Army ARDEC, Picatinny Arsenal NJ USA</p>
<p align="center">The High Energy Density Materials: a new challenge G. Jacob SME France</p>
<p align="center">Session S1c - Energetic materials and molecules Chair-persons: Luc PREAUD, ASTRIUM ST Helmut MUTHIG, TDW</p>
<p align="center">Agglomeration of combustion products of aluminum containing propellants Lebedeva Elena, Astafyeva Svetlana, Strelnikov Vladimir, Valtsifer Viktor, Tutubalina Irina, Valtsifer Igor Institute of Technical Chemistry of Ural Branch of the Russian Academy of Sciences</p>
<p align="center">Combustion characteristics of ADN (Ammonium Dinitramide) based solid propellants Koji Fujisato, Hirota Habu, Hidefumi Shibamoto, Xiuchao Yu, Atsumi Miyake, Keiichi Hori JAXA, Japan</p>
<p align="center">Molecular Hydrogen storage and its restitution by a solid state combustion mechanism J.P. GOUDON, C. VELLA, P. YVART, J. RENOARD SNPE Matériaux Energétiques, France</p>
<p align="center">Session S51a - Methodologies for design, reliability and lifetime demonstration, IMness justifications Chair-persons: Sebastien VEYRY, Snecma Propulsion Solide Michel VIVES, MBDA</p>

<p align="center">Six Sigma® methodology applied to blasting S.Mencacci, D.Jacquet, O.Vandenabelle, R.Chavez, JF.Couvrat, Y.Sarrey EPC Group and Davey Bickford, France</p>
<p align="center">Numerical Study of Lead Azide Detonation Initiation and Propagation A. V. Trotsyuk (1), B. A. Khasainov (1), H.-N. Presles (1), G. Damamme (2), M. Missionier (2) (1) Institut PPRIME (UPR 3346 CNRS), 86360, Poitiers, France – (2) CEA, DAM lie de France, France</p>
<p align="center">Reaction Kinetic Modeling of the Decomposition Kinetics of Comp A5 E.R. Bixon, W.H. Davis, H.A. Grau, D.J. Murphy, D.G Pfau US ARMY ARDEC, Picatinny Arsenal NJ 07806-5000</p>
<p align="center">To assess the compliance of one-shot products with a required reliability GTPS Reliability Commission Multi-companies, France</p>
<p align="center">Modelling emission spectra of diatomic molecules for characterization and simulation of pyrotechnic mixtures S. Knapp, W. Eckl, S. Kelzenberg, V. Weiser Fraunhofer Institut für Chemische Technologie ICT, 76327 Pfinztal, Germany</p>
<p align="center">Session S51b - Methodologies for design, reliability and lifetime demonstration, "IMness justifications" Chair-persons: Ian MC INTOSH, CHEMRING EUK Alain MOBUCHON, PyroAlliance</p>
<p align="center">Numerical simulation of blast wave generated by detonation of cylindrical charges S. Kerampran(1), M. Arrigoni(1), L. Korzeczek(1), M. Lefebvre(2) (1) ENSIETA (France), (2) Ecole Royale Militaire (Belgium)</p>
<p align="center">Modelling of pyrotechnic mechanisms Bertrand Haguenaer Pyroalliance, France</p>
<p align="center">Analysis of the Effect of Friction on High Explosives Hong Tao and Lin Wenzhou Institute of Applied Physics and Computational Mathematics</p>
<p align="center">QSPR Prediction of Impact Sensitivity of Nitro Energetic Compounds V. Prana, G. Fayet, P. Rotureau and C. Adamo Chimie ParisTech, France; INERIS, France</p>
<p align="center">Modelling of intumescent coatings growth: simulation from the lab-scale to the large one Fabien Chassagne, Mathieu Gillet, Félix Daguisé, Jean-Jacques Serra DGA (Direction Générale de l'Armement), France</p>
<p align="center">Simulations of threats defined in STANAG 4439 on a 155 mm artillery shell Frédéric NOZERES, Rémi BOULANGER, Cécile GROGNET, Régis AUMASSON NEXTER Munitions, France</p>
<p align="center">Session S51c -Methodologies for design, reliability and lifetime demonstration, "IMness justifications" Chair-persons: Jay PORET, ARDEC Shimada TORU, JAXA</p>
<p align="center">Integration of safety requirements into a missile booster design Arnaud Urien, Jean-Michel Larrieu Snecma Propulsion Solide, France</p>
<p align="center">How to Get Insensitive Munitions Benefits According to Hazard Classification Yves GUENGANT IMEMG</p>
<p align="center">Environmental impact evaluation and eco-design ammunition M. REGIS, C. POINTART, C. JOY NEXTER Munitions - Etienne Lacroix - DGAITT</p>

<p align="center">Session S2a - New explosive devices and systems</p> <p align="center">Chair-persons: Jochen NEUTZ, Fraunhofer Institut für Chemische Technologie Dave NOVOTNEY, ENSIGN-BICKFORD Aerospace & Defense Company</p>
<p align="center">The Design Method of the Chain from Igniting Element to DDT Booster</p> <p align="center">ZHU Shunguan, ZHOU Jie, MA Peng, ZHANG Lin, ZHANG Lei Nanjing University of Science and Technology</p>
<p align="center">The Application of Printing Technologies for Pyrotechnic Delays</p> <p align="center">William Beer Wales</p>
<p align="center">Impulseur d'éjection de charge sous avions d'armes, améliorations et nouvelles fonctionnalités</p> <p align="center">Ph. JOFFARD (DGA), S. PHELEP (DAVEY BICKFORD), D. RICHIER (Dassault Aviation) DGA, Davey Bickford, Dassault Aviation (France)</p>
<p align="center">A Novel Technology for Multi-Point Initiation of High Explosives</p> <p align="center">Werner Arnold, Markus Graswald MBDA-TDW, Germany</p>
<p align="center">The design of low induced shock pyro-actuators</p> <p align="center">Alex Chartier, Charlotte Lenoir Pyroalliance, France</p>
<p align="center">Overview of the pyrotechnic activities in CNES Toulouse Space Centre</p> <p align="center">Denis DILHAN CNES Toulouse Space Center - France</p>
<p align="center">Session S2b - New explosive devices and systems</p> <p align="center">Chair-persons: Gérard TANGUY, NEXTER Munitions Frédérique MEYER LASSALLE, CNES-DLA</p>
<p align="center">Technological breakthrough in Safety and Arming Unit</p> <p align="center">P. MAGNAN, R. BOULANGER NEXTER Munitions, France</p>
<p align="center">Control of the functioning time of an all secondary explosive Laser Ignited Detonator</p> <p align="center">H.Moulard, E.Fousson, A.Ritter, J.Mory ISL, Saint-Louis, FRANCE</p>
<p align="center">Solid state firing unit for EFI detonator</p> <p align="center">P. MAGNAN NEXTER Munitions, FRANCE</p>
<p align="center">The Application of Laser Ignition of Explosives to Device Design</p> <p align="center">R C Drake AWE, UK</p>
<p align="center">Cool Gas Generators from research to applications in space and on earth</p> <p align="center">Berry Sanders TNO</p>
<p align="center">Research of Semiconductor Bridge Plasma with Optical Technique</p> <p align="center">Zhang Lin, Feng Hongyan, Zhu Shunguan Nanjing University of Science and Technology, China</p>
<p align="center">Session S6a - High Dynamics Pressure workshop</p> <p align="center">Chair-persons: Pierre-Yves CHANTERET, ISL Thierry MASSARD, CEA / DAM</p>
<p align="center">Numerical and experimental study of an open-ended steel pipe subjected to a spherical explosive loading</p> <p align="center">Crouzet B., Cousin L., Froidefond T. CEA, DAM. DIF, F-91297 Arpajon, France</p>

<p align="center">Explosive decomposition of PETN initiated by High-Current Electron Beam G. Damamme, V. Lisitsyn, D. Malys, V. Oleshko Russian Federation - Tomsk Polytechnic University, Russia - CEA, France</p>
<p align="center">Calculating Hugoniot for molecular crystals from First Principles Ryan R. Wixom, Ann E. Mattsson, Thomas R. Mattsson Sandia National Laboratories, USA</p>
<p align="center">Characterization of Blast Wave Mitigation by Aqueous Foams through Measurements and Numerical Multiphase Modelling Emilie Del Prete, Ashwin CHINNAYYA, Abdellah HADJADJ, Lucas DOMERGUE, Jean-François HAAS CEA/DAM/DIF, CORIA CNRS UMR 6614 - France</p>
<p align="center">Shock Deformation Mechanism for Initiation of Explosive Decomposition in Heavy Metal Azides Yu.N. Zhuravlev, G. Damamme, V.M. Lisitsyn, D. Malys Russian Federation - Tomsk Polytechnic University, Russia - CEA, France</p>
<p align="center">Session S6b - High Dynamics Pressure workshop Chair-persons: Michel LEFEBVRE, RMA Ryan WIXOM, Sandia National Laboratories</p>
<p align="center">Laser Initiation of Volumetrically Compacted PETN Powders in UV Spectral Region G. Damamme*, D. Malys*, V. Tsipilev, E. Morozova Russian Federation - Tomsk Polytechnic University, Russia - *CEA, France</p>
<p align="center">Experimental characterization of the shock to detonation transition and the sustained detonation in a TATB-based explosive using the embedded multiple electromagnetic particle velocity gauge method A Sollier, P. Manczur, B. Crouzet, L. Soulard, J-H. Quesada, J-M. Chevalier, P. Bouinot, R. Duconget, V. Bouyer, A Hedin, R. Letremy CEA, France</p>
<p align="center">Développement d'une instabilité plastique par compression isentropique: nouvelle méthode expérimentale appliquée à la caractérisation de l'or B. Savale, C. Bolis, D. Counilh, G. Peillex, A. Sollier, M. Toury CEA/DAM/DIF</p>
<p align="center">Explosion Initiation of Uniform Pressed PETN Powders by Laser Radiation of Their Transparent Spectral Region G. Damamme, D. Malys, V. Tsipilev, A. Skripin France, Russian Federation</p>
<p align="center">Molecular dynamics simulations of the shock compression of diamond with the LCBOPII potential N. Pineau [1], R. Perriot [2], J.H. Los [3]. J.-B. Maillet [1], L. Soulard [1] and I.I. Oleynik [2] [1] CEA, DAM, DIF, F-91297 Arpajon, France [2] Department of Physics, University of South Florida, Tampa, Florida 33620, USA [3] CINaM, CNRS and Aix Marseille University, Campus de Luminy, case 913, 13288 Marseille cedex 09, France</p>
<p align="center">Session S11a - Nano energetic materials Chair-persons: Ernst-Christian KOCH, Munitions Safety Information Analysis Center Christian MASSON, ONERA</p>
<p align="center">Numerical investigation on the diffusion process of self-sustaining combustions in Al/Ni multilayer foils L. Wang, X.H. Jiang, B. He Institute of Chemical Materials, CAEP</p>
<p align="center">Aluminum, Zirconium and Titanium combustion in air with nitrides stabilization in condensed combustion products A.A. Gromov, A.B. Vorozhtsov, Yu.I. Strokova, A.A. Ditts, U. Teipel Tomsk Polytechnic University, Russia, Fraunhofer ICT, Germany</p>

<p align="center">Control of the reactivity of phosphorus based nanothermites Marc COMET, Benny SIEGERT, Fabien SCHNELL, Fabrice CISZEK, Vincent PICHOT, Jens KOKOT, Yves SUMA, Yannick BOEHRER, Denis SPITZER ISL - Laboratoire NS3E, UMR ISL/CNRS 3208</p>
<p align="center">Continuous formation of nano energetic materials Benedikt RISSE, Denis SPITZER, Dominique HASSLER, Fabien SCHNELL ISL, France, Allemagne</p>
<p align="center">Formulation and characterizations of nanoenergetic compositions A. Guillaume, A. Beaucamp, M. Rocquin CEA Le Ripault, France</p>
<p align="center">Formation of spatial structure of oxide containing carbon particles in ECS oligomer binder I. Valtsifer, S. Astafeva, V. Valtsifer, V. Strelnikov, E. Lebedeva, I. Tutubalina Russian Academy of Science Ural Division Institute of Technical Chemistry, Russia</p>
<p align="center">Session S11b - Nano energetic materials Chair-persons: Steven F. SON, Purdue University James CALLAWAY, DSTL</p>
<p align="center">Reduced-sensitivity nanothermites based on filled carbon nanofibers Benny Siegert, Marc Comet, Olivier Muller, Fabien Schnell, Denis Spitzer NS3E, UMR 3208 ISL/CNRS, Institut franco-allemand de Recherches de Saint-Louis, France</p>
<p align="center">Development of propellants generating nanosized aerosols of given composition Astafyeva Svetlana, Lebedeva Elena, Strelnikov Vladimir, Valtsifer Viktor, Tutubalina Irina, Valtsifer Igor Institute of Technical Chemistry of Ural Branch of the Russian Academy of Sciences, Russia</p>
<p align="center">Aluminized HNIW-based nanocomposite - synthesis and explosive properties A.N. Zhigach, I.O. Leipunsky, B.V. Kudrov, E.S. Zotova, N.G. Beriozkina, M.F. Gogulya, M.A. Brazhnikov, V.A. Teselkin, A.Y. Dolgoborodov, M.N. Makhov Institute for Energy Problems of Chemical Physics RAS, Semenov's institute of Chemical Physics RAS, Moscow, Russia</p>
<p align="center">Titanium Dioxide Influence On Combustion Of HMX N. Muravyev, Yu. Frolov, Alia Pivkina, K. Monogarov, D. Meerov, Olga Ordzhonikidze Semenov Institute of Chemical Physics, Russian Academy of Science, Russia</p>
<p align="center">Effect of Carbon Nano Fibrils on Burn Rate and IR Intensity of Mg/Teflon/Viton Infrared flare Compositions R. S. Palaiah, M. N. Manda*, N. R. Shah, P. I. Waghmare, S. M. Danali and K. C. Raha HEMRL (DRDO), India</p>
<p align="center">Pyrophoric Porous Self Supporting Substrates with Tunable Thermal Response Zac Doorenbos¹, Lori Groven², Chris Haines³, Deepak Kapoor³ and Jan Puszynski*⁴ 1Innovative Materials and Processes, LLC Rapid City, SD 57701 USA</p>
<p align="center">Session S7a - Regulations, environment and recycling Chair-persons: Dietrich ECKHARDT, BAM Jean-Luc FAUQUEMBERGUE, DGA/IPE</p>
<p align="center">A new impulse for the French MURAT policy Serge Bordachar, Deputy Head Munitions Safety Office DGA/IPE</p>
<p align="center">REACH and NEXTER Munitions NICOLE FORICHON CHAUMET NEXTER Munitions, FRANCE</p>
<p align="center">Possible coming changes in French explosives safety regulations Regis Guegan / Deputy French Competent Authority DGA/INSP/IPE/ France</p>

<p align="center">Session S7b - Regulations, environment and recycling</p> <p align="center">Chairpersons: Frantz CAILLAU, NEXTER Munitions Pierre THEBAULT, E. Lacroix</p>
<p align="center">Blast Effect Assessment for Complex Structure Buildings: Tests on Models and Numerical Simulations</p> <p align="center">C. COLLET, J. MORICEAU, Y.GUENGANT Matériaux Energétiques</p>
<p align="center">PRIMEVERE: Safe and clean test facilities for pyrotechnical and hazardous devices</p> <p align="center">Thibault DERODE - Gestion des risques majeurs. ASTRIUM Space Transportation, France</p>
<p align="center">Inertization of Nitrocellulose Based propellants</p> <p align="center">M.L. Douet, C.I. Van de Velde and M.H. Lefebvre Laboratory for Energetic Materials - RMA, Belgium</p>
<p align="center">Debris Risk Assessment for Industrial Explosive Installation</p> <p align="center">Y.Guengant, A. Philippe, H. Miermont SME, SFEPA</p>
<p align="center">Session S52a - Methodologies for design, reliability and lifetime demonstration, "IMness justifications"</p> <p align="center">Chairperson : Rick ARMITAGE, CHEMRING PLC Group</p>
<p align="center">Optimization of Modelling of Materials Aging Investigated by Ex-Situ Acquisition of Experimental Data. Determination of the Propellant Stability by HPLC</p> <p align="center">Bertrand Roduit(1), Patrick Folly(2), Alexandre Sarbach(2), Pierre Guillaume(3), Laurence Jeunieu(4) 1 AKTS AG, Switzerland, 2 armasuisse, Switzerland, 3 PB Clermont, Belgium, 4 Royal Military Academy, Belgium</p>
<p align="center">Simultaneous Streak and Framing imaging for performance evaluation of Composition C-4</p> <p align="center">H. Muthurajan, Teo Zihao, Robbin Poh Chen Tien, Ang How Ghee Energetics Research Institute, Nanyang Technological University, Singapore</p>
<p align="center">Influence of the Explosive Charge Characteristics</p> <p align="center">Florian PECHOUX, Bart SIMOENS and Michel LEFEBVRE RMA, Belgium</p>
<p align="center">Session S52b - Methodologies for design, reliability and lifetime demonstration, "IMness justifications"</p> <p align="center">Chair-persons: Jan PUSZYNSKI Mike BOWDEN, AWE</p>
<p align="center">Determination of Laser-driven Flyer Velocity and Integrity Using Photonic Doppler Velocimetry</p> <p align="center">Sarah Knowles, Mike Bowden AWE Plc, UK</p>
<p align="center">Characterization of standard and reduced sensitivity RDX samples by differential iso-conversional analysis of microcalorimetric measurements between 120°C and 150°C</p> <p align="center">Dr. Manfred Bohn Fraunhofer ICT, Germany</p>
<p align="center">Interest of the evolutions on Xray generator for detonics: ANGELIX example</p> <p align="center">Etchessahar Bertrand, Nicolas Rémi, Bozier Olivier CEA, DAM, DIF, France</p>
<p align="center">Non-intrusive Diagnostics with X-ray CT Device of Microstructure in Composite Propellants Containing High Amount of Aluminum</p> <p align="center">Shimada, T., Kitagawa, K., Kosuge, H., Hasegawa, H., Fukunaga, M., Miyachi, H. Japan Aerospace Exploration Agency</p>
<p align="center">POSTER SESSIONS</p>

<p align="center">System to characterize pyrotechnic pollutants C. Archambaud, M. Roger, H. F. Fédou DGA Technical Directorate, Bourges, France</p>
<p align="center">Modeling of the synthesis of 1,1-diamino-2,2-dinitroethylene (DADNE) Waldemar A. Trzeci, Z. Chy Military University of Technology, Warsaw, Poland</p>
<p align="center">Bio-degradable Thermoplastics for Use in Pyrotechnics Gary Chen, Matt Hall, Jeff Wiggins United States</p>
<p align="center">Gun Propellant Ignition P. DELLA PIETA - C. VELLA SNPE - FRANCE</p>
<p align="center">Development of a new pressable XP® explosive composition for medium caliber C. COULOUARN*, P. LAMY-BRACQ, Y. DUFOUR NEXTER Munitions</p>
<p align="center">Modelling of melt-cast processes LAMY-BRACQ Peggy NEXTER Munitions</p>
<p align="center">Blast and Heat Flux Characterisation of MTV Compositions N Davies, M Williams and L Dunne Cranfield University, UK</p>
<p align="center">Microwave assisted synthesis of 1,2,4-triazol-5-one Mateusz Szala, Stanislaw Cudzilo, Rafal Lewczuk Military University of Technology, Poland</p>
<p align="center">Study of Blast Pressure and Fragments Generated by Accidental Explosions. Comparison of Hydrodynamic Calculations with Experimental Results Hervé Suzanne (corresponding author herve.suzanne@cea.fr), Roland Letremy, Vincent Mineau, Michel Doucet, Viviane Bouyer, Sophie De Vito CEA DAM LE RIPAUT, FRANCE</p>
<p align="center">Oxidation kinetics of metal particles O. Schulz*, N. Eisenreich, J. Neutz, H. Fietzek, B. Eickershoff Fraunhofer Institut für Chemische Technologie (ICT), D-76327 Pfinztal, Germany</p>
<p align="center">Effect of the oxygen balance on ignition and detonation properties of liquid explosive mixtures M. Genetier, A. Osmont, G. Baudin, R. Serradeill CEA Gramat, France</p>
<p align="center">Evaluation of X-ray computed tomography for assessing the effect of gaps on initiation train reliability G. Flegg AWE, UK</p>
<p align="center">Detonation synthesis of nanosized oxide ceramics P. Gibot, F. Quesnay, J. Mory, D. Hassler, D. Spitzer ISL/CNRS</p>
<p align="center">A study of separation mechanism in the ball type bolt using dynamic separation test YeungJo Lee, SongHae Koo, HongBin Jang Agency for Defense Development, Korea</p>
<p align="center">PRIMEVERE : A secured infrastructure design example Thibault DERODE - Gestion des risques majeurs ASTRIUM Space Transportation, France</p>
<p align="center">Numerical Simulations of a Pyrotechnic Shock Test NDAMBI, REYMEN, LECOMPTE, VANTOMME Royal Military Academy, BE</p>

Experimental and numerical dynamic ductile damage analysis of inflators structure

H. Fresnel (2), P. Longère (1), V. Grolleau (1), G. Rio (1) and P. Hardy (2)

(1) Laboratoire de Génie Mécanique et Matériaux - Université de Bretagne Sud - Rue de Saint Maudé, BP 92116, 56321 LORIENT Cedex, France. (2) AUTOLIV LIVBAG - Route du Beuzit, 29390 PONT-DE-BUIS, France

Chemical evaluations of Airbag components

M.Lévêque, R.Andry

AUTOLIV LIVBAG - Route du Beuzit, 29390 PONT-DE-BUIS, France

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507	Thermochemical Modeling of Classical Arsenic-based White Firework Flames <i>Rotz, C.</i>
527	The Synthesis and Investigation of Nitrogen-rich and Boron-based Compounds as Coloring Agents in Pyrotechnics <i>Rusan, M.</i>
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680	Effect of Porous Copper on Thermal Decomposition of Ammonium Perchlorate <i>Yinghua, Y.</i>
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"Combustion synthesis of titanium carbonitride powders" CUDZILO, STANISLAW	
"The Quest for the Missing Energetic Building Block Nitril Cyanide, NCNO ₂ " RAHM, MARTIN	
"A Stable Catenated N11 Energetic Salt" TANG, YONGXIN	
"Metal tetrazoles: from power to control" MIRO SABATE, CARLOS	
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"Challenges and perspectives in Energetic Materials and Pyrotechnics" Mr. HERVÉ GRAINDORGE	
"Research of combustion of metal-containing condensed heterogeneous systems with the use of metal sulphates and carbonates" BELYAKOV, A	
"Properties of Mechanoactivated Mixtures of Aluminium with Potassium Perchlorate" DOLGOBORODOV, ALEXANDER	
"Development of pyrotechnic structures based on calcium sulfate for processing of oil wells" KHAIRULLINA, ANNA ALEKSANDROVNA (CO-AUTHOR)	

<p>“Fabrication of pyrophoric films using combination of tape casting and hydrogen reduction processes” PUSZYNSKI, JAN A.</p>
<p>“NATO support to the demilitarization of pyrotechnics” VAN BENEDEN, TOM</p>
<p>SESSION 3 - “SAFETY, ENVIRONMENTAL AND REGULATORY ASPECTS”</p>
<p>“Present and Future Challenges in Pyrotechny” Mr. LIONEL AUFAUVRE</p>
<p>“Testing of Pyrotechnic Incendiary Compositions” GRIFFITHS, TREVOR</p>
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<p>“Toxicity assessment of signalling smokes” POULSON, GRAHAME</p>
<p>“The effects of smoke hand grenades on human lung cells and bacteria for toxicity screening” VAN HULST, MONIQUE</p>
<p>“Quantification of the nitrocellulose in solid propellant intermediate using NIR spectroscopy implemented with fiber-optic probe” ZOU, QUAN</p>
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<p>“High Speed OH PLIF Applied to Solid Propellants” Dr. STEVEN SON</p>
<p>“Desensitization of an Al/WO₃ Nanothermite by Carbon Additives” BACH, ARNAUD</p>
<p>“Overview of Pyrotechnic activities in CNES Toulouse Space Centre” DILHAN, DENIS</p>
<p>“Effect of Mechanically Activated Aluminum- Polytetrafluoroethylene Composite Particles on Solid Propellant Combustion” GROVEN, LORI J.</p>
<p>“Spectroscopic Investigation of Europium and Samarium Combustion Flames” KOCH, ERNST-CHRISTIAN</p>
<p>“Effect of stoichiometry, size and aging of Al/CuO nanolaminates on initiation, combustion and thermal properties” MOHAMMADMAHDI, BAHRAMI</p>
<p>“Development of Ultra fine Energetic Composites” RISSE, BENEDIKT (CO-AUTHOR)</p>
<p>“Characterization of Fuel-Rich Mechanically Activated Silicon/Polytetrafluoroethylene” SON, STEVEN F.</p>
<p>“Thermal sources of energy of pyrotechnic type” VYBORNOV, SERGEY</p>
<p>“On the Fate of Nanostructures Prior to and During Combustion” ZACHARIAH, MICHAEL</p>
<p>SESSION 5 - “MODELLING AND TESTING”</p>
<p>“Recent Approaches for Modelling Pyrotechnic Reactions” Dr. STEFAN KELZENBERG</p>
<p>“Temperature Histories of Some Guanidinium 1,5'-bis-1HTetrazolate/Ammonium Nitrate/Additive Mixtures” DATE, SHINGO</p>
<p>“QSPR models for the prediction of explosive properties of nitro compounds” FAYET, GUILLAUME</p>
<p>“Simple Test for Detecting Influence of Sample Aging on its Thermal behavior. Peculiarities of different kinetic models” HARTMANN, MARCO</p>

<p>“Terminal wall velocities of emulsion explosive charges” KÜNZEL, MARTIN</p>
<p>“Miscibility Predictions of Cellulose Nitrates/Plasticizers Blends with the Use of Theoretical Approaches” N. NIKITINA, NATALIA</p>
<p>“Numerical characterisation of the combustion of pyrotechnical mixtures and propellants” OTON MARTINEZ, RAMON ANTONIO</p>
<p>“Initiation of HMX-based PBX when submitted to a weak impact: the Susan test” PICART, DIDIER</p>
<p>“Modeling the Energy Release and Burn Rate Characteristics of ZPP-Based Pyrotechnic Initiators” RINK, KARL K.</p>
<p>“Numerical study on the transition from slow burning to detonation in granular explosives” TAO, HONG</p>
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<p>SESSION 6 - “INITIATION”</p>
<p>“Initiation and Initiation Systems” Mr. ROD DRAKE</p>
<p>“Study of SCB Ignitor under Constant-current Incentive” BAO, ASUNA</p>
<p>“Effects of Microstructure on the Initiation of Heterogeneous Explosives” DAMM, DAVID</p>
<p>“Electro-explosion performance of KNO₃@CNTs initiator” GUO, RUI</p>
<p>“Small-scale shock experiments to characterize performance of detonator materials” R.WIXOM, RYAN</p>
<p>“Molecular dynamics study of the reaction front propagation in PETN” SERGEEV, OLEG</p>
<p>“Manufacturing and Reaction Mechanisms of Nanocomposite Energetics” SULLIVAN, KYLE</p>
<p>“DBX-1 (copper(I)-5-nitrotetrazolate) reactions at sub-millimeter diameters” TAPPAN, ALEXANDER S.</p>
<p>“Safe and Smart Initiator Integrating Multilayer Nanothermite PyroMEMS” TATON, GUILLAUME</p>
<p>“Research for the ignite of different size of Detonators” WENJIAN, CAI</p>
<p>“Decomposition of RDX by 1064nm laser irradiation: a mass spectrometric investigation” ZHANG, WEI</p>
<p>SESSION 7 - “MILITARY PYROTECHNICS”</p>
<p>“Recent Advances in Military Pyrotechnics” Dr. ERNST-CHRISTIAN KOCH</p>
<p>“Investigation of Mn/MnO₂/KClO₄ System as Slow Burning Pyrotechnic Time Delay Formulation” CHOWDHURY, SAHA</p>
<p>“Investigation of Pyrotechnic Formulations for Multispectral Infrared Flare” DEBNATH, SOUJOY</p>
<p>“Ignition ability of DB based energetic composite” CHENG, YI</p>
<p>“Studies to Replace an Initiator Delay Composition” GRIFFITHS, TREVOR</p>
<p>“Advanced black body infrared decoy flares” HAHMA, DR ARNO</p>

<p>“Experimental determination and prediction of solid liquid phase equilibria for binary mixture of energetic materials stabilizers” KHIMECHE, KAMEL</p>
<p>“Emission spectroscopy on thermite mixtures” KNAPP, SEBASTIAN</p>
<p>“Emission spectroscopy on Al/CuO thermite mixture” LILJEDAHN, MATTIAS</p>
<p>“Compound based on nano-thermite for solid propellant microthruster” RU, CHENGBO</p>
<p>“High-Nitrogen Materials for Pyrotechnic Near-Infrared Illuminants” SCHEUTZOW, DR. SUSANNE</p>
<p>“Studies on Pyrotechnic Ignition” WILLIAMS, MATTHEW</p>
<p>“The Effect of Graphite, Boron Powder and Carbon Nano Tube Content on Spectral Radiant Intensity and Spectral Efficiency” YAYLA, SANIYE</p>
<p>SESSION 8 - “STAGE PYRO AND FIREWORKS”</p>
<p>“The Pyrotechnic sector - are we at a legislative crisis?” Dr. TOM SMITH</p>
<p>“Analysis and reduction of the risk of explosion for fire in the pyrotechnic magazines” CASIN LOYA, JUAN</p>
<p>“Study of a prediction model of fireworks service life from its kinetic parameters” COLLADO, BEATRIZ</p>
<p>“Safer photoflash compositions based on blue aluminium” PARIS CORMA, JOSE MARIA</p>
<p>“Energetic Materials Based on Azole Borates” RUSAN, MAGDALENA</p>
<p>“Water resistance in comets” SAEZ, VICENTE</p>
<p>POSTER SESSION 1 - “SYNTHESIS”</p>
<p>“2,4-Dimethylamino-6-nitrato-1,3,5-trimethylborazine Crystal Structure” BOREK, THEODORE T.</p>
<p>“Urethane copolymers structure of 3,3-bis (azidomethyl) oxetane and 3-azidomethyl-3-methyloxetane” KUZNETSOVA NINA VLADIMIROVNA (CO-AUTOR)</p>
<p>“The Novelty High–Nitrogen Energetic Compounds Based on the 4-amino-1,2,4-triazole (ATZ) and 1,1'-azobis(1,3,4-triazole) (1,1'-ATZ)” LI, YANG</p>
<p>“Novel Insensitive Energetic Cocrystals of 1-Nitronaphthalene” PENG MA (CO-AUTHOR)</p>
<p>“Synthesis and Characterization of a Stable Unsymmetrical Azo Compound with N8 Structure” WU, BO</p>
<p>POSTER SESSION 2 - “MANUFACTURE”</p>
<p>“Development of pyrotechnic structures based on calcium sulfate for processing of oil wells” BELYAKOV, A</p>
<p>“Pulse Generator of Pressures for Treating Oil Wells” MOKEEV, ALEXANDER</p>
<p>“Usage of conversion energetic materials in hydraulic borehole of salt rocks” NUREEVA DANIYA NIYAZOVNA (CO-AUTHOR)</p>
<p>“Investigation for obtaining of pyrotechnical products” SHISHKOV, PETER</p>
<p>POSTER SESSION 3 - “SAFETY, ENVIRONMENTAL AND REGULATORY ASPECTS”</p>

<p>“An analysis of a new technology, machinery and catalysts application’s results dedicated to solving of ecological problems of energy saturated materials’ manufacturing” PETROV IVANOVICH, VLADIMIR</p>
<p>“Graphene Nanoplatelets Modified Lead Azide and its Depressed Electrostatic Hazards” ZHANG, TONGLAI</p>
<p>POSTER SESSION 4 - “EMERGING TECHNOLOGIES”</p>
<p>“Complex of potassium-5,7-dihydroxy-4,6-dinitrobenzofuroxane - surround a flame retarder cellulose nitrate” VASYUTINA, EKATERINA</p>
<p>POSTER SESSION 5 - “MODELLING AND TESTING”</p>
<p>“Explosive Ignition due to Adiabatic Shear” CURTIS, JOHN</p>
<p>“Molecular dynamic simulation of trans-1,4,5,8-tetranitro-1,4,5,8-tetraazadacalin (TNAD) with some propellants” JU, XUE-HAI</p>
<p>“Structural and Electronic properties of PETN under pressure: a density functional theory study” MA, PENG</p>
<p>“Thermal Decomposition Studies Using DPTA Method on High Energy Nitramine Explosives” TONGLAI, ZHANG</p>
<p>“Ammonium Perchlorate, Friend or Foe?” TUNNELL, RUTH</p>
<p>“A simplified computational model of the oxidation of Zr/Al multilayers” VOHRA, MANAV</p>
<p>“Oxidation Kinetics of Amorphous Boron” YAN, SHI</p>
<p>POSTER SESSION 6 - “INITIATION”</p>
<p>“The velocities of laser-driven flyers under different acceleration chambers and laser energies”. CHEN, SHAOJIE</p>
<p>POSTER SESSION 7 - “MILITARY PYROTECHNICS”</p>
<p>“Development of Small Calibre Infrared Tracers”. BENOIT, JOLICOEUR</p>
<p>POSTER SESSION 8 - “FIREWORKS”</p>
<p>“Pyrotechnic ingredients based on a triazole moiety” MIRO SABATE, CARLOS</p>