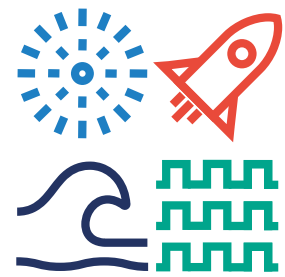


PROGRAM



**EURO
PYRO**

46th IPS SEMINAR • 2023

**SEPTEMBER,
11 - 14th
2023**

ST MALO
FRANCE

SEMINAR TOPIC

Af3P (Association Française de Pyrotechnie) and GTPS (Groupe de Travail de Pyrotechnie) organize the EUROPYRO 2023/46th IPS Seminar in Saint-Malo (France). This event gathers every 4 years representatives from industry and research working in the field of explosives, pyrotechnics and energetic materials.

On Wednesday September 13th, the congress welcomes the “Workshop on Explosives”, organized by the CEA. This workshop is intended for engineers and researchers interested in energetic materials science and technology. This time, it will be devoted to the study of the correlations between manufacturing processes, microstructure parameters and energetic behavior (detonics, safety, ...).

EUROPYRO 2023 46th IPS Seminar

150 papers presented during plenary and posters sessions :

- Official language is english
- No simultaneous translation
- The numerical Book of Proceedings will be provided in english

POSTER SESSION

Posters will be permanently exhibited during the entire seminar. Panels are provided by the convention center. A specific session, accompanied by a cocktail, will be held on Tuesday late afternoon.

EXHIBITION

Booths can be installed since Monday September 11th afternoon and must be released before 6:00 pm on Thursday September 14th.

For more informations, please contact the organization at :

✉ secretary@europyro2023.org



SEMINAR CHAIRMAN
















Chairman : Lionel HAIRAUT (CEA)

SCIENTIFIC COMMITTEE

Chairman : Philippe Le Helley (ArianeGroup)

Secretary : Jean-François Guéry (ArianeGroup)

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	MBDA	Michel VIVES
	U.S. Navy NAWCWD	Ephraim WASHBURN
	ICT Fraunhofer	Volker WEISER



MONDAY, SEPTEMBER 11th

16:00 - 18:00

Reception of the delegates at the Palais du Grand Large

From 18:30

Official welcome reception at the Palais du Grand Large - Cocktail





TUESDAY, SEPTEMBER 12th

ROOM



AUDITORIUM DU GRAND LARGE

From 08:00

Registration

08:30 - 09:10

Opening Ceremony

09:10 - 09:30

Paul Vieille Special Award • Genevieve ECK - Eurenco

09:30 - 10:00

Keynote 1

Fielding Safe and Effective Munitions in the Current Surge of Demand



Dr FUCHS Brian

Steering Committee Chair, Munitions Safety Information Analysis Center, MSIAC, NATO, USA

10:00 - 10:30

Coffee break





AWARD CEREMONY - AUDITORIUM DU GRAND LARGE

10:30 - 10:55

IPS Frank Carver Bursary Award
Kazuki INOUE - Yokohama National University
Preparation and energetic characterization of azole-oxidizer ionic cocrystals

10:55 - 11:20

Dr Bernard E. Douda IPS Young Scientist Award
Sabrina WAHLER - RoseEnergetic UG
Research output software for energetic materials based on observational modelling/machine learning (RoseBoom2.4©)

10:55 - 11:20

Special Af3P and GTPS French Young Scientist Award
Jordan EHRHARDT - Institut Saint Louis (ISL)
Towards understanding gun propellant decomposition via detailed kinetic modeling

11:20 - 11:45

Innovation GTPS Award : **Th. DERODE - Arianegroup SAS**
ElixirTM, a new treatment unit for a safe and clean destruction of pyrotechnic material wastes

12:10 - 12:30

Group photo

12:30 - 14:00

Lunch



AUDITORIUM DU GRAND LARGE

SESSION 1 • Energetic Materials 1

Chairpersons : J. van Lingen / D. Poullain

SALLE GRAND LARGE

SESSION 2 • Pyrotechnics systems

Chairpersons : C. Tamisier / B. Chamayou

SALLE BOUVET

SESSION 3 • Modeling 1

Chairpersons : A. Osmont / A. Chinnayya

14:00

Electrosynthesis of energetic materials



Presenter : PIERCEY Davin
Purdue University

Safety in Production approach applied to pyrotechnics



Presenter : COTTREL-BUSSENAULT Marie
ArianeGroup SAS

On the calculation of Chapman-Jouguet states using the STASIS multi-phase thermochemical code



Presenter : PARKER Andrew
Fluid Gravity Engineering Ltd

14:20

Synthesis of CL-20 by palladium-free and benzylamine free route



Presenter : RAO VEPA Kameswara
University of Hyderabad, India

Laser slapper detonator for shock compression study of energetic materials: free-space and fibered systems



Presenter : HEBERT Philippe
CEA Le Ripault

CARTE thermochemical code : calculation of detonation properties



Presenter : DUBOIS Vincent
CEA DAM-Ile de France

14:40

Combustion and mechanical properties of co(glycidyl nitrate-glycidyl azide) polymer energetic binders



Presenter : DUBOIS Charles
Polytechnique Montreal

Hydrotrial Initiator Characterisation Trial



Presenter : SCOTT Thomas
AWE

MAXIMUM LIKELIHOOD ANALYSIS OF THE JAMES CRITERION



Presenter : MAISEY Matthew
AWE

15:00

Theoretical and practical approach of a new method for chemical compatibility tests applied to pyrotechnic compositions



Presenters : MEDUS Dominique
Etienne LACROIX

Characterization of Pressure Output in Pyrotechnic Delays



Presenter : MOTYKA Mark
US Army

Correlation between gap-test and P-tau criterion applied to the determination of non-detonation



Presenter : ELIA Thomas
Thales LAS



AUDITORIUM DU GRAND LARGE

SESSION 1 • Energetic Materials 1

Chairpersons : J. van Lingen / D. Poullain

SALLE GRAND LARGE

SESSION 2 • Pyrotechnics systems

Chairpersons : C. Tamisier / B. Chamayou

SALLE BOUVET

SESSION 3 • Modeling 1


Chairpersons : A. Osmont / A. Chinnayya

15:20


Performance studies of Glycidyl Azide Polymers coated Aluminium particles

 Presenter : KEERTHI Venu
Nanyang Technological University

A New Pyrotechnic Delay for the 120 mm HE RAP ammunition

 Presenter : SABARD Jérémy
Thales LAS France

Assessment of ammunition reaction violence for any mechanical load

 Presenter : GATTINI Sébastien
ArianeGroup SAS

15:40

Investigation of morphology-controllable synthesis of CuO and their catalytic efficiency for ammonium perchlorate

 Presenter : SHEN Lixiao
Nanjing University of Science and Technology

Flyer plate ignition of launcher détonation based functions

 Presenter : GLAVIER Ludovic
ArianeGroup SAS

Application of machine learning to the design of energetic materials: preliminary experience and comparison with alternative techniques

 Presenter : WESPISER Clément
CEA Le Ripault

16:00

Coffee break




16:30


Synthesis and characterization of a promising energetic polysaccharide derived from chitosan for potential application in advanced energetic formulations

 Presenter : TARCHOUN Ahmed Fouzi
Ecole Militaire Polytechnique Algiers

Adequacy between linear charge dihedral pyrotechnic jetcord choice and mechanical parasitic ruptures in the case of pyrotechnical rings application

 Presenter : MAR Modou
ArianeGroup SAS

Experimental measurement of heats of formation of explosives: towards reference cohesive energy data for energetic salts


 Presenter : PASQUINET Eric
CEA Le Ripault

16:50

Nitrostarch as a promising insensitive energetic biopolymer: synthesis, characterization, and thermal decomposition kinetics

 Presenter : ABDELAZIZ Amir
Ecole Militaire Polytechnique Algiers

Design and set-up of a high-speed isolation valve: application to hypervelocity impacts on hydrazine

 Presenter : ABDULHAMID Hakim
Thiot Ingénierie

Experimental and modeling study of RDX-HTPB gun propellant decomposition

 Presenter : EHRHARDT Jordan
French-German Research Institute of Saint-Louis (ISL)



AUDITORIUM DU GRAND LARGE

SESSION 1 • Energetic Materials 1

Chairpersons : J. van Lingen / D. Poullain

SALLE GRAND LARGE

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Chairpersons : C. Tamisier / B. Chamayou


SALLE BOUVET

SESSION 3 • Modeling 1

Chairpersons : A. Osmont / A. Chinnayya

17:10

Formulation, synthesis and characterization of nitroglycerin inclusion compounds

 Presenter : COMET Marc
ISL/CNRS/UNISTRA

Hybrid Gas Generation for Small Size Applications

 Presenter : LE BRETON Gaël
Pyroalliance

Kinetic Analysis of the Thermal Decomposition of Three LOVA Gun Propellants Based on RDX and Nitrocellulose


 Presenter : DELBARRE Samuel
Univ. Orleans

17:30

Chemical model to evaluate new htpb batch: Application to composite propellants tuning

 Presenter : REJSEK-RIBA Virginie
ROXEL France

Analytical and numerical approach for the modelling of a leaking high-pressure pyromechanism

 Presenter : BRATEAU Marion
CTAI

Chemical kinetic modeling study of double-base propellant decomposition

 Presenter : GLORIAN Julien
French-German Research Institute of Saint-Louis (ISL)

17:50

Property Estimation of Energetic Composite Materials

 Presenter : JAANSALU Kevin M.
Munitions Safety Information Analysis Center,
NATO HQ, Brussels

Methodology for structural robustness evaluation of hybrid airbag inflator submitted to pyrotechnic pressure wave

 Presenter : DAVIOT Nicolas
Autoliv Livbag

A novel method for improving the reliability of simulation of the behavior of energetic materials based on kinetic analysis

 Presenter : RODUIT Bertrand
AKTS SA

18:15 - 20:00

Poster session and Cocktail





WEDNESDAY, SEPTEMBER 13th

08:30 - 09:00

Keynote 2

The Safety and Performance Characteristics of LLM-105 and its Plastic Bonded Formulations Correlated to Ingredient Properties



Dr GASH Alexander

Deputy Director, Energetic Materials Center, Lawrence Livermore National Laboratory, USA



AUDITORIUM DU GRAND LARGE

SESSION 4 • Modeling 2

Workshop on explosives (Journée détonique CEA)

Chairpersons : M. Massey / A. Osmont

SALLE GRAND LARGE

SESSION 5 • Mechanics

Chairpersons : Ph. Le Helley / S. Kerampra

SALLE BOUVET

SESSION 6 • Testing facilities

Chairpersons : A. Lefrançois / Y. Guengant

09:10

Pressure and temperature dependent thermal conductivity tensor of high explosive crystals



Presenter : PERRIOT Romain
Los Alamos National Laboratory

Multi-scale study of inelastic deformation mechanisms in propellants and plastic bonded explosives



Presenter : BROWN Judith
Sandia National Laboratories

Design, set-up of a new powder launcher at CEA Gramat and first experiments



Presenter : LE GALLIC Christian
CEA Gramat

09:30

Towards modeling polycrystalline TATB at extreme conditions: a mesoscale model informed by atomistic simulations



Presenter : LAFOUCARDE Paul
CEA DAM-Ile de France et Université Paris-Saclay

Modelling nano-indentation of single crystal beta-HMX.



Presenter : DROUET David
Univ. Tours, Univ. Orléans, INSA CVL, LaMé

Study of the development of a new pyrotechnic site for reactive materials investigations



Presenter : PEYRATOUT Maëlle
Thiot Ingenierie

09:50

Influence of microstructure on the Shock Detonation Transition of heterogeneous explosives



Presenter : SAUNIER Jérôme
CEA Gramat / Institut Pprime

Fatigue of a TATB-based plastic bonded explosive



Presenter : PICART Didier
CEA Le Ripault

Rail guided bombs: launcher set up, predictive analysis and experimental results



Presenter : PIROTAIS Olivier
CEA Gramat

10:10

Pore-scale simulations of pop-plot in HMX and HMX-based explosives



Presenter : GALLIER Stany
ArianeGroup SAS

HVEV: A nonlinear viscoelastic model applied to energetic materials



Presenter : RABETTE François
ArianeGroup SAS

10:30 - 11:00

Break





AUDITORIUM DU GRAND LARGE

SESSION 7 • Co-crystals

Workshop on explosives (Journée détonique CEA)

Chairpersons : A. Gash / E. Pasquinet

SALLE GRAND LARGE

SESSION 8 • Fireworks and decoys

Chairpersons : D. Medus / S. Besombes

SALLE BOUVET

SESSION 9 • Prevention and detection

Chairpersons : L. Hairault / D. Poullain

11:00

Successful journey in preparation of the energy-safety balanced cocrystals of attractive nitramines via coagglomeration

 Presenter : PATIL Veerabhadragouda B.
University of Pardubice

Infrared-Spectroscopy of the Combustion Flame of Red Phosphorus

 Presenter : KOCH Ernst-Christian
Lutradyn, Germany

Phlegmatization of highly sensitive Explosives for the Use in Explosive Detection Dog Training

 Presenter : WILHELM Isabel
Fraunhofer Institute for Chemical Technology (ICT)

11:20

Detonation Performance and Material Characterization of CL-20 and MDNT Co-crystal Versus Physical Mixture

 Presenter : LAWRENCE Joseph
Purdue University

Adiabatic flame temperatures of firework compositions

 Presenter : HOBBS Michael
Sandia National Laboratories

Characterization of Homemade Explosives for Aviation Security: The Effect of Material Properties on X-ray Feature Spaces

 Presenter : DEPIERO Sabrina
LLNL

11:40


Molecular Dynamic Simulations for Stability Prediction of Energetic Cocrystals

 Presenter : POSSEL Clemens
Fraunhofer Institute for Chemical Technology (ICT)

Behavior of millimeter-wave radiation in the flame of Mg-based pyrotechnic composition

 Presenter : LI Jingwei
Nanjing University of Science and Technology

Detonation Simulant of Homemade Explosive as Donor Charge for Tertiary Explosives


 Presenter : BELMEHDI Djamel
Ecole Militaire Polytechnique, Algiers

12:00

Effect of Preparation Conditions on Cyclic Thermal Behaviors of Some Potassium Nitrate-doped Phase-stabilized Ammonium Nitrates

 Presenter : DATE Shingo
National Defense Academy, Japan

Development of environmentally friendly pyrotechnic colored flame compositions

 Presenters : ZEBREGS Martijn
TNO, Department of Energetic Material

Global HME Precursor Testing Project

 Presenter : COLLEY Thomas
US Department of Homeland Security



AUDITORIUM DU GRAND LARGE

SESSION 7 • Co-crystals

Workshop on explosives (Journée détonique CEA)

Chairpersons : A. Gash / E. Pasquinet

SALLE GRAND LARGE

SESSION 8 • Fireworks and decoys

Chairpersons : D. Medus / S. Besombes

SALLE BOUVET

SESSION 9 • Prevention and detection

Chairpersons : L. Hairault / D. Poullain

12:20

Energetic Ionic Cococrystals of Ammonium Nitrate



Presenter : BENNETT Andrew
University of Michigan

Development of a low-smoke lift system for fireworks shells



Presenter : DEN OTTER Arjan
TNO, Department of Energetic Material

Requirements for post-blast explosive forensics underwater



Presenter : ÖNNERUD Hans
FOI, Sweden

12:45 - 14:00

Lunch



AUDITORIUM DU GRAND LARGE

SESSION 10 • IP and SD phenomena

Workshop on explosives (Journée détonique CEA)

Chairpersons : D. Spitzer / A. Beaucamp

SALLE GRAND LARGE

SESSION 11 • Energetic Materials – Additive manufacturing

Chairpersons : S. Date / J.F. Guery


SALLE BOUVET

SESSION 12 • Testing

Chairpersons : E. Welle / S. Bordachar

14:00


Spray flash evaporation (sfe) and spray flash synthesis (sfs), two continuous versatile processes to formulate and synthesize energetic nano- and submicronized materials with enhanced safety

 Presenter : SPITZER Denis
NS3E/ISL

Additive Manufacturing of Energetic Materials at Los Alamos National Lab

 Presenter : MUELLER Alexander
Los Alamos National Lab

IM Signature of Aged Munitions


 Presenter : COLLET Christelle
MSIAC

14:20

Nanoporous Carbon Filled with Oxidizing Agents: an Effective and Pragmatic Approach to Energetic Nanomaterials

 Presenter : VAN RIET Romuald
Royal Military Academy, Brussels

Additive manufacturing of explosives compositions

 Presenter : HOLSTEIN Audrey
ArianeGroup SAS

TNT early reaction in shock Equation of State determinations

 Presenter : LEFRANCOIS Alexandre
CEA Gramat

14:40


Preparation and stabilisation of amorphous energetic materials

 Presenter : CHANDWANI Monica
University of Edinburgh

Developing Digital Twins of Additive Manufactured Components


 Presenter : KLINE Dylan
Lawrence Livermore National Laboratory

Factors influencing ESD tests for pyrotechnic compositions

 Presenter : PELIKAN Vojtech
University of Pardubice

15:00

Modeling the shock-to-detonation transition process in the TATB/HMX composition TX1 with a reactive burn model based on an implicit viscoplastic pore collapse model

 Presenter : BOUTON Eric
CEA Le Ripault

Additive Manufacturing of Dog Bones and Strands of an Ammonium Perchlorate/Thermoplastic Elastomer Propellant

 Presenter : BLADHOLM Viktor
Swedish Defence Research Agency

Blast effects of an underwater explosion: a small-scale approach using high-speed imaging

 Presenter : TRELAT Sophie
IRSN (Institut de Radioprotection et de Sûreté Nucléaire)



AUDITORIUM DU GRAND LARGE

SESSION 10 : IP and SD phenomena

Workshop on explosives (Journée détonique CEA)

Chairpersons : D. Spitzer / A. Beaucamp

SALLE GRAND LARGE

SESSION 11 • Energetic Materials - Additive manufacturing and RAM

Chairpersons : S. Date / J.F. Guery

SALLE BOUVET

SESSION 12 • Testing

Chairpersons : E. Welle / S. Bordachar

15:20

Study on the Influence of microstructure on the Detonation Performance of a TATB-based PBX



Presenter : BOUCHET Thomas
CEA Le Ripault

Probing the role of solids loading and mix procedure on the properties of acoustically mixed materials for additive manufacturing



Presenter : DOORENBOS Zac
Lawrence Livermore National Laboratory

Effects of explosive charges in contact with steel plates: small-scale experimental investigation using high-speed imaging



Presenter : STURTZER Michel
French-German Research Institute of Saint-Louis (ISL)

15:40

The Enhanced Floret Test - Revealing the Surprising Insensitivity of LLM-105 Formulation Corner-Turning Behavior to Density



Presenter : HOBSON-DUPONT Maximillian
Lawrence Livermore National Laboratory

Optimization model and analysis of screw extrusion 3D printing process parameters for propellants



Presenter : WANG Moru
Nanjing University

Acceleration ability of oxidizer-containing cast cured aluminized explosives



Presenter : YANG Kun
Beijing Institute of Technology

17:30

Visits in Saint-Malo

19:30

Gala Dinner at Palais du Grand Large





THURSDAY, SEPTEMBER 14th

08:30 - 09:00

Keynote 3

Metal combustion



Prof. HALTER Fabien

Institut de Combustion Aérodynamique Réactivité et Environnement (ICARE), Orleans University, France



AUDITORIUM DU GRAND LARGE

SESSION 13 • Combustion 1

Chairpersons : F. Halter / C. Rossi

SALLE GRAND LARGE

SESSION 14 • Energetic materials 2

Chairpersons : C. Coulouarn / L. Minguet


SALLE BOUVET

SESSION 15 • Environment

Chairpersons : V. Weiser / S. Desombes

09:10

Reaction Mechanisms In Powdered Thermites

 Presenter : SULLIVAN Kyle
Lawrence Livermore National Laboratory

Insensitive High Explosive Qualification of LLM-105 Based Explosive

 Presenter : HERNANDEZ Patricia
Lawrence Livermore National Laboratory

Feasibility of next-generation colored smoke compositions with reduced toxicity

 Presenter : POINTART Céline
Etienne LACROIX

09:30


Toward a computational tool to simulate for the combustion of thermites powders

 Presenter : GLAVIER Ludovic
ArianeGroup SAS

To predict energetic material critical diameter

 Presenter : POIREY Gilles
ArianeGroup SAS

Development of an in vitro method to assess the cytotoxic effect of pyrotechnic smoke compositions


 Presenter : ASHRIN Aya
INERIS

09:50

Multilinear analysis of influential parameters on the combustion velocity of ternary pyrotechnic compositions

 Presenter : ROSÈRES Charles
INERIS

Effect of the initiation point on the blast generated by a high explosive cylinder of varying shape

 Presenter : OSMONT Antoine
CEA/DAM

Effect of temperature and atmosphere on NOx emissions during incineration of waste energetic materials

 Presenter : JIN Guorui
Nanjing University of Science and Technology

10:10


Investigation of the catalytic effects of mono/bimetallic organic framework derivatives on ammonium perchlorate

 Presenter : YAN Li
Nanjing University of Science and Technology

Anisotropic Detonation to shape directional effects

 Presenter : BODARD Sébastien
EURENCO

Underwater demilitarization: a safe and efficient way to eliminate solid propellant

 Presenter : BOUTEILLE Frédéric
MERIEL Laurent
ROXEL France

10:30 - 11:00

Coffee break





AUDITORIUM DU GRAND LARGE

Session 16 : Combustion 2

Chairpersons : S. Gallier / F. Halter

SALLE GRAND LARGE

Session 17 : Energetic materials 3

Chairpersons : L. Minguet / C. Tamisier


SALLE BOUVET

11:00

Silicon - a established pyrotechnic fuel as zero-carbon, high-density energy storage

 Presenter : WEISER Volker
Fraunhofer Institute for Chemical Technology (ICT)

Self-Healing Cast Cured Energetic Materials

 Presenter : ECK Geneviève
EURENCO

11:20

Janus Type Hypergolic Fuels for Hybrid Propulsion

 Presenter : GOZIN Michael
Tel Aviv University

The reaction kinetic handling of complex reaction behaviour in solid com-posite rocket propellants cured with aziridine type agents


 Presenter : BOHN Manfred A.
Fraunhofer Institute for Chemical Technology (ICT)

11:40

Measurement of the temperature of burning aluminum particles using multi-spectral pyrometry

 Presenter : GLASZIOU Valentin
CEA Gramat & CNRS-ICARE

New manufacturing process of energetic materials by Resonant Acoustic Mixing (RAM) - From lab to fab

 Presenter : PEROUEL Julie
EURENCO

12:00

Aluminum combustion: from detonation to blast effects

 Presenter : ARNAUD Nicolas
ArianeGroup SAS

New low cost melt-cast composition for IM mortar ammunition - Theoretical approach to experimental aspect

 Presenter : GILLOUX Teddy
Thales

GTPS Workshop

- Energetic materials ageing
- Environmentally responsible design



AUDITORIUM DU GRAND LARGE

Session 16 : Combustion 2

Chairpersons : S. Gallier / F. Halter

12:20

Impact Sensitivity Estimation of Pure Energetic Materials



Presenter : OSMONT Antoine
CEA Gramat

SALLE GRAND LARGE

Session 17 : Energetic materials 3

Chairpersons : L. Minguet / C. Tamisier

Use of soluble desensitizer to pilot terminal performance and IM response for a TNT based melt-cast composition



Presenter : GILLOUX Teddy
Thales

SALLE BOUVET

GTPS Workshop

- Energetic materials ageing
- Environmentally responsible design

12:40 - 14:00

Lunch



AUDITORIUM DU GRAND LARGE

SESSION 18 • Combustion 3

Chairpersons : A. Chinnayya /
A. Junqua-Moulet

SALLE GRAND LARGE

SESSION 19 • Reactivity

Chairpersons : A. Beaucamp / M. Maisey


SALLE BOUVET

SESSION 20 • Safety

Chairpersons : Y. Guengant / C. Coulouarn

14:00


Experiment and Numerical Study on Near-field Underwater Explosion of Aluminized Explosive

 Presenter : SUN Yuanxiang
Beijing Institute of Technology

Rationalisation and Prediction of the Impact Sensitivity of Dinitramide Salts Based on Analysis of Intermolecular Interactions

 Presenter : AKACHAI Khumsri
University of Edinburgh

Integrated Safety System Design for a Detonation Physics Laboratory

 Presenter : WELLE Eric
Air Force Research Laboratory - Munitions Directorate

14:20

Thermal performance of gelled thermobaric explosives based on isopropyl nitrate and reactive metal powders

 Presenter : BAJIC Danica
University of Defense, Military Technical Institute, Belgrade

Modeling the decomposition of energetic materials and their sensitivity

 Presenter : GLORIAN Julien
French-German Research Institute of Saint-Louis (ISL)

Investigation on the dual use of thermal insulation materials as blast mitigation solution

 Presenter : DROUET David
Académie militaire de Saint-Cyr Coëtquidan

14:40

Graphene Oxide as a Hybrid Oxidizing Additive for B/PTFE Composites

 Presenter : QUEK Sebastian Yongsan
Nanyang Technological University

Analytical study of the HERMES ignition parameter under idealised conditions

 Presenter : SCHOFIELD Adam
AWE

Designing a multicellular pyrotechnic facility against detonation - An actual case study

 Presenter : CHAMPASSITH Anousone
Technip Energies

15:00

Design methodology for UnExploded Ordnance (UXO) protection structures in pyrotechnical depollution: illustration with a 155mm round and a 1000lbs GP bomb

 Presenter : MESPOULET Jérôme
Thiot, Thiot Ingenierie

Low-velocity impact and damage of a pressed high explosive

 Presenter : HAMON Emilien
CEA - Le Ripault

Development of a non propagating container for A6 ESR neutralization

 Presenter : CLANCIER Ludovic
ArianeGroup SAS



AUDITORIUM DU GRAND LARGE

SESSION 18 • Combustion 3

Chairpersons : A. Chinnayya /
A. Junqua-Moulet

15:20

Experimental and numerical methodologies to characterize base-bleed operation in internal ballistics conditions


 Presenter : GAILLARD Thomas
DMPE, ONERA, Université Paris Saclay

SALLE GRAND LARGE

SESSION 19 • Reactivity

Chairpersons : A. Beaucamp / M. Maisey

From pyrotechnic compositions to SARS-COV-2 virucidal disinfection; a (nice) ride with NOx

 Presenter : ANDRES Didier
PYRAGRIC

SALLE BOUVET

SESSION 20 • Safety

Chairpersons : Y. Guengant / C. Coulouarn

Blast wave mitigation by liquid foams

 Presenter : REINDERS Aymerick
ENSTA Bretagne

16:00 - 16:30

Closing Ceremony

POSTERS

- 1 A study of the Glycidyl Azide Polymer curing systems using triazole and urethane crosslinked networks**
Presenter: PALUSSIÈRE Ségolène - ONERA
- 2 Tests of colored smoke in an instrumented box**
Presenter: GUERIN Aurelie - DGA Land Systems
- 3 The Activation Energy of Hexanitrostilbene (HNS-IV) and the Study of Thermal Characteristics of HNS-IV with Accelerated Aging**
Presenter: KAMAL Hazal - Roketsan Inc.
- 4 Resonant acoustic mixing applied to energetic material**
Presenter: DAVID-QUILLOT Frank - CEA Le Ripault
- 5 STUDY OF PRESSING PROCEDURES OF PYROTECHNIC HEATING COMPOSITION**
Presenter: LOPES Ana - Cranfield University
- 6 Use of a Microcalorimeter to Evaluate Thermally Sensitive Energetic Materials**
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- 10 Effect of Nano Barium Oxide on Thermal decomposition properties and chemical stability of nitrocellulose**
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- 11 A Combined Model for the Pinch and Shearing of an Explosive**
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- 12 THALES R&T capacities dedicated to future ammunition**
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- 14 Fast cook-off simulations and comparison with experiments**
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15 Laser breakdown as an alternative to study blast waves at the lab scale

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16 Some achievements in the synthesis of primary EMs

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17 Mica ng dual pulse rocket motor: on the way for a Murat * label

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18 Simulation of confined high explosive ignition under low velocity impact

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19 Erosion model

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20 A methodology to optimise base bleed grain designs

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21 Assembly by fiber laser technology

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22 An analytical model for the pinch of an unconfined hollow explosive cylinder

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23 Effect of pyrotechnical compositions on deflagration to detonation transition development in pentaerythritol tetranitrate

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24 Assessment of ternary pyrotechnic compositions thermal conductivities using binary and multi-scale model

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25 Prediction of the enthalpy of formation of energetic materials by density functional theory calculations

Presenter: OMLOR Andreas - Fraunhofer Institute for Chemical Technology (ICT)

26 SIMULATION FOR ENERGETIC MATERIALS Using Inert Crystalline Materials as a Simulation for Energetic Materials

Presenter: MINTOFF Alice - Cranfield University

27 Performances and Detonability of Urea-Hydrogen Peroxide (UHP)

Presenter: HALLEUX Francis - Royal Military Academy, Brussels

28 Experimental evidence of shock wave measurements with low-velocity (<100 m/s) and fast dynamics (<10 ns) capabilities using an innovative coupled PDV and triature VISAR diagnostic

Presenter: ARRIGONI Michel - ENSTA Bretagne

29

Study of the ageing of phlegmatized Nitrocellulose in storage conditions and its sensitivity toward shock wave

Presenter: PESSINA Florent - INERIS

30

Development and architecture of opto-pyrotechnical initiators

Presenter: MERLINGE Nicolas - NEXTER Munitions

31

A first approach of the use of laser-driven flyers for shock initiation of explosives: flyer acceleration

Presenter: MORAND Julie - CEA Le Ripault

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