48th International Pyrotechnics Society Seminar Daily Agenda

Monday 08. September 2025

8:00	Registration
8:45	Introduction and Welcome: Dr. Magdalena Rusan, Seminar-Chair, Vice President IPS
9:00	**Key Note Address: Christian Schragen WECO (Germany)** ***Keynote on commercial pyrotechnic applications: Fireworks - Production requirements and challenges***
Session A	**Pyrotechnic Formulations: Modelling**
Session Chair	*Dr. habil Ernst-Christian Koch*
9:50	***Optimal Pyrotechnic Red Flare Compositions*** Arno Hahma (Germany)
10:15	***Progress in Modelling Pyrotechnic Mixtures*** Sebastian Knapp (Germany)
10:40	*Coffee Break (Foyer)*
Session B	**Pyrotechnic Formulations: Material Processing and Analytics**
Session Chair	*Mirko Tornesi & Dr. Lamla Thungatha*
11:10	***Pyrotechnic Composition Manufacture Using Dual Asymmetric Centrifuge and Resonant Acoustic Mixing Techniques*** Mark Bradley (UK)
11:35	***Optimization of Sustainable Boron-Based Pyrotechnic Compositions Using RSM*** Danillo Cantini, Vojtěch Pelikán, Jiří Pachman (Czech Republic)
12:00	***Lab-scale Aerosol Collector for the Development of New Coloured Smoke Formulations*** David Dubé (Canada)
12:30-13:45	*Lunch Break (Haus E: Rooms E0.011 and E0.013)*
Session C	**Pyrotechnic Formulations: Material Effects and Properties**
Session Chair	*Patrick Lieber & Ryosuke Omori*
13:50	***Mechanistic Insights into the Influence of Catalysts on $KClO_4$/ $C_{12}H_{22}O_{11}$-Based Pyrotechnic Compositions*** Wen-long Ren, Chen-guang Zhu (China)
14:15	***Development of Sparkler Formulations*** Magdalena Rusan (Germany)
14:40	***The enhanced effect of Mg on the ignition reaction of MgB_2@KNO_3 pyrotechnic system by determination of the kinetic triplet*** Qian Huang, Chenguang Zhu (China)

15:05	***Study on Combustion Characteristics of Metal Boride Energetic Materials and Application in Spectral Matching Infrared Decoy Formulation*** Yuyang Zeng, Chenguang Zhu, Chengchen Zhang, Qian Huang, Yikai Wang, Mingxing Zhang, Wenlong Ren, Dehao Xiong, Zhiwen lin, Kaige Guo, Pengfei Wu (China)
15:30	*Coffee Break (Foyer)*
16:00	***Innovation in Pyrotechnic Compositions: Trends and Research Developments*** Alexander Schweiger, Thomas M. Klapötke (Germany)
16:45 – 18:00	**Poster Session** The poster presenters are asked to be at their posters
18:00	**Reception with sandwiches and drinks in the Foyer**

Tuesday 09. September 2025

9:00	**Key Note Address: Prof. Dr. Muhamed Sućeska, University of Zagreb (Croatia)** ***Application of thermochemical calculations for predicting explosives performance***
Session D	**Modelling**
Session Chair	*Dr. Michael L. Hobbs & Dr. Jasmin Lechner*
9:50	***Development of the EOS code for detonation products*** Shiro Kubota, Tomoharu Matsumura, Yuta Sugiyama, Takahiro Tamba, Kazuya Nomura, Ken Okada, Kunihito Nagayama (Japan)
10:15	***Unlocking the handcuffs of the periodic table: Using atomic features for predicting detonation velocity in RoseBoom©*** Sabrina Wahler (USA)
10:40	*Coffee Break (Foyer)*
11:10	***Research on ignition characteristics of semiconductor bridge igniter based on Ansys simulation software*** Lei Wang, Bin Zhou (China)
11:35	***Nature's Blueprint: A Simulation Approach to Xanthine-Inspired Templates for Insensitive Energetic Materials*** Lamla Thungatha, Lisa Ngcebesha, Conrad Mahlase (South Africa)
12:00	***Simulation of Explosive Vapour Transport in Porous Soil Media*** Alexander B. Vorozhtsov, Olga B. Kudryashova, Vladimir M. Gruznov, Sergei D. Sokolov (Russia)
12:30-13:45	*Lunch Break (Haus E: Rooms E0.011 and E0.013)*

Session E	**New Materials: Synthesis, Properties and Analytics**
Session Chair	*Prof. Dr. Shingo Date & Dr. Sebastian Knapp*
13:50	***Chemical stability of the CHNO-oxidizer TNEF*** Manfred A. Bohn, Jasmin Lechner, Moritz Heil, Thomas M. Klapötke (Germany)
14:15	***Energetic properties of inositol hexanitrates*** Rafał Lewczuk, Martyna Niedolistek, Marcin Hara, Sławomir Wojtulewski (Poland)
14:40	***Potassium-calcium styphnate as a green alternative in primer cap mixtures*** Shouei Yiu, Marcus Lommel, Jörg Stierstorfer, Thomas M. Klapötke (Germany)
15:05	***Underwater detection of explosives using Raman Spectroscopy*** Dominika Sobczuk, Karol Zalewski, Mateusz Szala (Poland)
15:30	*Coffee Break (Foyer)*
16:00 – 17:00	**Poster Session** The poster presenters are asked to be at their posters

Wednesday 10. September 2025

9:00	**FRANK CARVER BURSARY AWARD WINNER** **Dr. Ahmed Fouzi Tarchoun (Algeria)** *Presented by Dr. Ken Smit, President IPS* ***Design and characterization of a novel promising energetic polysaccharide based on carbamate-functionalized cellulose***
Session F	**Propellants and Ignition**
Session Chair	*Dominika Sobczuk & Shuping Li*
9:50	***Ignition on Contact – The Next Generation of Hypergolic Space Propellants*** Tobias Lenz, Jörg Stierstorfer (Germany)
10:15	***Preparation of Al/CuO Energetic Semiconductor Bridge and Its Enhanced Ignition Performance Based on 3D Direct Writing Printing*** Jianbing Xu, Yongqi Da, Shuyan Chen, Yinghua Ye, Ruiqi Shen (China)
10:40	*Coffee Break (Foyer)*
11:10	***Testing of dual-propellant solid rocket motors*** Mirko Tornesi, Matteo Milano, Barbara Betti, Marco Fiorillo (Italy)
11:35	***Thermal ignition of four aluminized explosives*** Michael L. Hobbs, Michael J. Kaneshige, William W. Erikson and Paul M. Delery (USA)

12:00	***Combustion Characteristics and Mechanism of Electrically Controlled Solid Propellant at High Pressure*** Wei Zhang, Zhiwen Wang, Ruiqi Shen (China)
12:25-12:45	**Group Photo (in the courtyard next to the Baeyer statue)**
13:00	**Departure Excursion to Schliersbergalm by Bus**
	Wednesday afternoon is free time. **No lunch will be provided on this day.**

Thursday 11. September 2025

9:00	**Key Note Address: Prof. Dr. Thomas M. Klapötke, Ludwig Maximilian University Munich (Germany)** ***TBX Formulations with Alternative Metal Fuels, High Explosives and Oxidizers***
Session G	**Material Reactivity: Combustion and Synthesis**
Session Chair	*Dr. Ken Smit & Alexander Schweiger*
9:50	***Tetrazoles as nitrogen source for combustion and detonation synthesis of boron nitride*** Mateusz Gratzke, Stanisław Cudziło (Poland)
10:15	***Energetic plasticizers for GAP-based formulations with ADN: Compatibility and performance evaluation of a nitrofurazanyl ether*** Patrick Lieber, Uwe Schaller, Thomas M. Klapötke (Germany)
10:40	*Coffee Break (Foyer)*
11:10	***Synthesis, characterization and comparative analysis of three energetic plasticizers: Exploring the Impact of Diverse Functional Groups on properties and performance*** Jasmin T. Lechner, Thomas B. Keicher (Germany)
11:35	***Combustion Enhancement in Thermites: Role of Oxidizer Morphology in Mitigating Sintering Effects*** Buhao Zheng, Jianyong Xu, Wenchao Zhang, Chunpei Yu (China)
12:00	***High-Performance Boron Combustion Enabled by AlB_2@B@PVDF*** Zhiwen Lin, Chenguang Zhu (China)
12:30-13:45	*Lunch Break (Haus E: Rooms E0.011 and E0.013)*
Session H	**Material Processing & Reactivity**
Session Chair	*Danillo Cantini & Dr. Nawel Matmat*
13:50	***Characterization Related to Optimization of 3D Printing of Potassium Perchlorate Based Composition through Vat Photopolymerization*** *Takahiro Okano, Sakura Sakakibara, Kosuke Shirase, Shingo Date (Japan)*

14:15	***Toward the Development of Voltage Application Thrusters: Combustion Tests of Energetic Ionic Liquids*** Ryosuke Omori (Japan)
14:40	***Solid-State Phase Changes in Guanidinium Nitrate*** Ivan Mendenhall, Robert Smith, Zayn Rhodes, Steven Butler, Francois Peremarty (USA)
15:05	***Comparative Study of AP@NPS-DEGDN and AN@NPS-DEGDN Energetic Composites: Thermal Properties, Decomposition Kinetics, and Performance*** Nassima Sahnoun, Amir Abdelaziz, Memdouh Chebbah, Ahmed Fouzi Tarchoun, Djalal Trache (Algeria)
15:30	*Coffee Break (Foyer)*
16:00	***Characterisation of Homemade Explosives: Synthesis, Identification, and Thermal Stability Assessment*** Pholisa Ngcebesha, Lamla Thungatha, Conrad Mahlase (South Africa)
16:25	***International Pyrotechnics Society Business Meeting*** ***IPS members and non-members are encouraged to attend***
17:00	**Joint Departure to Marienplatz Munich (by Public Transportation)** **Meeting Point: in front of the Liebig Lecture Hall**
18:00-22:00	**IPS Conference Dinner** **Restaurant Ratskeller**

Friday 12. September 2025

Session I	**New Materials, Material Effects and Nanothermites**
Session Chair	*Dr. Tobias Lenz & Dr. Magdalena Rusan*
9:00	***Recent Advances in the Development of Novel and Functional Energetic Coordination Compounds*** Jörg Stierstorfer, T. M. Klapötke, Marcus Lommel, Simon Endrass, Markus Rösch (Germany)
9:25	***Thermite films with high energy output: Al/Ti dual-fuel system*** Xianghong Xiao, Lejian Chen, Hongyu Chen, Xueer Li, RuiQi Shen, Lizhi Wu (China)
9:50	***Facet-Engineered CuO Catalysts: Cubic Morphology with Exposed (111) Facets Boosting Ammonium Perchlorate Decomposition and Propellant Performance*** Shuping Li, Yan Li, Lin Zhang, Shunguan Zhu, Zhenxin Yi (China)
10:15	***Effect of the incorporation of $Bi_{1.7}K_{0.9}O_2(NO_3)_2$ on the performance of B-based ignition powder system*** Dehao Xiong, Chenguang Zhu (China)
10:40	*Coffee Break (Foyer)*

11:10	***Effect of hydrothermal synthesis conditions on combustion performance of Bi_2MoO_6 nanothermites*** Chengchen Zhang, Wei Zheng, Yuyang Zeng, Zhiwen Lin, Dehao Xiong, Qian Huang, Wenlong Ren, Yuxin Jia, Chenguang Zhu (China)
11:35	***Fabrication and Aging Performance of Al/CuO/PVDF Nanocomposite Energetic film*** Yinghua Ye, Qian Wang, Jianbing Xu, Hao Yu, Ruiqi Shen (China)
12:00	**Parting Remarks**

Poster Sessions

Temperature Distribution of Energetic Ionic Liquids Under Applied Voltage Conditions

Ryosuke Omori (Japan)

Small Scale Ignition of Pyrotechnic Composition Under Novel Mixing Parameters for Safety Validation

Daniel Humphries (UK)

Thermal Decomposition Kinetics of Fuel-Rich Solid Propellants with Modified Polyurethane Binders

Mohammed el amine Facih, Moulai Karim Boulkadid, Sabri Touidjine, Samir Belkhiri (Algeria)

Practical Assessment of Adhesive Sintered PTFE Vents to Manage MTV Gassing from Infrared Decoy Flares

Matthew Godwin, A. Oakes (UK)

Optimization and Characterization of NC-NS Based Energetic Composites Doped with Ammonium Oxidizers for Enhanced Solid Rocket Propulsion

Nawel Matmat, T. Djalal, A. Abdelaziz, A.F. Tarchoun (Algeria)

Optimizing Signal Star Performance Using Epoxy and Liquid Rubber Coating

Amal Alseradi, Maithaa AlMazrouei, Salama Alblooshi, Sinisa Pasagic (Abu Dhabi, UAE)

Research on formulation design and performance of thin-film type aerosol fire extinguishing agents

Chenguang Zhu, Runze Chen, Lixiao Shen (China)

The Effects of Relative Humidity and Temperature on the Magnesium Teflon Viton (MTV) Pyrotechnic Mixture

Funda KIZILKUŞ, Nihan Z. DEMİRKAYA (Türkiye)

Enhancing the Thermal Stability of Nitro Potato Starch Using Organic Stabilizers

Rania Hamou, Amir Abdelaziz, Djalal Trache, Ahmed Fouzi Tarchoun (Algeria)

A Comparison of Thermal and Burning Characteristics of MTV Decoy Flare Compositions Manufactured by Traditional and Novel Techniques

Josh Sankey, Niles Willmore (UK)

Investigation of Noise and Oscillation Effects in the Pressure Data of Close Bomb Tests Using Optimized Test Geometry and Digital Filtering

Koray Aykaç, Mesut Osman Akdoğan (Türkiye)

Heterocyclic salts as energy carriers for gun propellants

Kyung-Tae Han, Silke Braun (France)

Study of the Synthesis of MTX-1 from Tetrazene

Jakub Mikuláštík, Robert Matyáš (Czech Republic)

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

Zhenxin Yi, Yan Li, Lin Zhang, Shunguan Zhu, Zhenxin Yi (China)

WiFi:

Bayern-WLAN (no password)