ISEM2021 Schedule

Time JST (UTC+9)	Nov. 16, 2021 (Tue)		Nov. 17, 2021 (Wed)		Nov. 18, 2021 (Thu)	
	Room A	Room B	Room A	Room B	Room A	Room B
9:00	Opening		Invited Lecture **L2** Denes V. Agoston		Invited Lecture **L4** Kaiwen Xia	
10:00	**A1** Explosion Safety 1	**B1** Shock Compression of Condenced Matter 1	**A4** Explosion Safety 2	**B4** Gas Detonation	**A7** Blasting	**B7** Thermal Behavior 1
11:00						
12:00	Lunch		Lunch		Lunch	
13:00	Invited Lecture **L1** Alexander Vorozhtsov		**A5** Propellant and Pyrolant 2	**B5** Explosion Safety 3	Invited Lecture **L5** Mitsuru Arai	
14:00	**A2** HEMs 1	**B2** Propellant and Pyrolant 1	Invited Lecture **L3** Thomas M. Klapötke		**A8** Fireworks	**B8** Propellant and Pyrolant 4
15:00						
16:00	**A3** HEMs 2	**B3** Pyrotechnics and Analysis and Detection of Explosives	**A6** Propellant, Pyrolant 3 and Pyrotechnics		**A9** Thermal Behavior 2	**B9** Shock Compression of Condenced Matter 2
17:00					Closing	
18:00						

The 7th International Symposium on Energetic Materials and their Applications

TECHNICAL PROGRAM

November 16–18, 2021
Virtual Symposium, Tokyo, JAPAN

Nov. 16 (Tue)

9:00–9:30	Openning			
	A1 Explosion Safety 1 Chair: **Kunihiko Wakabayashi**		**B1** Shock Compression of Condenced Matter 1 Chair: **Kazuyuki Hokamoto**	
9:30–9:50	A1-1	**Effect of porous MgO when used as a stabilizer for nitrocellulose** Katsumi Katoh, Japan	B1-1	**A study of reaction growth-rate and burn-front velocity in PBXs through interface-resolved reactive simulations and experiments** Shobhan Roy, USA
9:50–10:10	A1-2	**Integrated safety system design for a detonation physics laboratory** Michael Meadows, USA	B1-2	**A novel framework for modeling the effects of single crystal plasticity in cyclotetramethylene tetranitramine (HMX) under shocks** Oishik Sen, USA
10:10–10:30	A1-3	**The next generation of CAMES™ sensors stress sensitive microcapsules for sheer and contact stress detection** Bernard M. Kosowski, USA	B1-3	**Canonical detonation phenomena and novel tools for characterization** Eric Welle, USA
10:30–10:50	A1-4	**Laser ignition of GO/Al/$KClO_4$ ternary nanothermites for micro thruster applications** Ahmed Fahd, Canada	B1-4	**Hotspot formation from elliptical void collapse in 1,3,5,7-tetranitro-1,3,5,7-tetrazoctane (HMX): comparison between MD and continuum models** Yen Nguyen, USA
10:50–11:10	A1-5	**New energetic molecule research at purdue university** Davin G. Piercey, USA		
11:10–11:30	A1-6	**Kinetic modeling for autoxidation of methyl acrylate containing radical inhibitor** Michiya Fujita, Japan		
11:30–13:00	LUNCH			

13:00–14:00	**L1**	**Invited Lecture 1** Chair: **Keiichi Hori** **Decision of antibacterial and antiviral problems based on the experience of nanotechnologies application for HEMs** Alexander Vorozhtsov Tomsk State University, Russia		
	A2	**HEMs 1** Chair: **Alexander Vorozhtsov, Keiichi Hori**	**B2**	**Propellant and Pyrolant 1** Chair: **Masafumi Tanaka**
14:00–14:20	A2-1	**Investigation of the mechanical properties of the A359 aluminum alloy reinforced with basalt fibers** Vladimir Valihov, Russia	B2-1	**Agglomeration and combustion characteristics of aluminum particles in ammonium perchlorate based composite propellants** Kotaro Matsumoto, Japan
14:20–14:40	A2-2	**Investigation of the effect of erbium particles on the structure and mechanical properties of the AA5056 alloy** Nikolai Kakhidze, Russia	B2-2	**Integration of fuel regression measurement function into hybrid rocket solid fuels with multi-material additive manufacturing** Kohei Ozawa, Japan
14:40–15:00	A2-3	**Structure and phase composition of $AlMgB_{14}$-TiB_2 obtained by SHS** Dmitrii Tkachev, Russia	B2-3	**Optical observation and measurement of the burning surface temperature profile of GAP/AP** Tamiaki Takasago, Japan
15:00–15:20	A2-4	**Investigation of structure and mechanical properties of the AA5056 alloy reinforced with tungsten nanoparticles** Anton Khrustalev, Russia	B2-4	**Numerical analysis of hybrid rocket engine combustion with Al powder added to solid fuel** Kanami Aoki, Japan
15:20–15:40			B2-5	**Temperature measurements of boundary layer diffusion flames in hybrid rockets using fine thermocouple and spectroscopy techniques** Ayana Banno, Japan
15:40–15:50	BREAK			
	A3	**HEMs 2** Chair: **Sebastian Knapp, Keiichi Hori**	**B3**	**Pyrotechnics and Analysis and Detection of Explosives** Chair: **Masafumi Tanaka**
15:50–16:10	A3-1	**Consortia as a new format for the formation of a world-class competitive Russian research and educational space** Elena. A. Danilova, Russia	B3-1	**Effect of mechanically activated powder for use in high energetic materials** Sergei D. Sokolov, Russia
16:10–16:30	A3-2	**Influence of preparation methods on burning rate of pyrotechnic mixtures** Sebastian Knapp, Germany	B3-2	**Obtaining and studying the properties of mechanically activated powders** Sergei D. Sokolov, Russia
16:30–16:50	A3-3	**Evaporation dynamics of trinitrotoluene microparticles from the glass surface** V. M. Gruznov, Russia	B3-3	**Combustion of large porous titanium particles in air as individual and as component of composite propellant** O. G. Glotov, Russia
16:50–17:10			B3-4	**Development and characterization of fluorescent sensory materials based on polystyrene for detection of nitroaromatic compouds** Roman Chuvashov, Russia

Nov. 17 (Wed)

9:00–10:00	**L2**	**Invited Lecture 2** Chair: **Shunichi Sato** **When physics meets biology; explosive blast induced traumatic brain injury** Denes V. Agoston Uniformed Services University, USA		
10:00–10:10	BREAK			
	A4	**Explosion Safety 2** Chair: **Kiyonobu Ohtani, Tomotaka Homae**	**B4**	**Gas Detonation** Chair: **Kazuhiro Ishii, Shinichi Maeda**
10:10–10:30	A4-1	**Effects of targeted application of a shock wave(s) to the brain and/or lungs in rats** Satoko Kawauchi, Japan	B4-1	**Generation of planar blast waves using a gaseous detonation-driven blast simulator** Tomoki Takehara, Japan
10:30–10:50	A4-2	**Scale effect on blast wave mitigation by interaction with water droplets** Takahiro Tamba, Japan	B4-2	**Experimental study on deflagration-to-detonation transition in a channel with densely-arranged roughness elements on the wall** Shinichi Maeda, Japan
10:50–11:10	A4-3	**Study on shock wave pressure attenuation by shock wave interaction with water droplets layer** Kiyonobu Ohtani, Japan	B4-3	**Flame propagation behavior in a swirling flow induced in a rotating tube** Riku Hayashi, Japan
11:10–11:30	A4-4	**Numerical analysis of the effect of water droplets layer location on the blast mitigation** Kakeru Shibue, Japan	B4-4	**Propagation characteristics of deflagration in swirling flow** Hajime Takahara, Japan
11:30–11:50	A4-5	**Blast-wave mitigation by periodic obstacles in a straight tube** Tomotaka Homae, Japan	B4-5	**Effects of bubble gas composition on bubble collapse by an underwater shock wave** Masaki Yamada, Japan
11:50–12:10	A4-6	**Numerical simulations on the blast wave mitigation during propagation inside an inner-grooved straight tube** Yuta Sugiyama, Japan		
12:10–13:20	LUNCH			
	A5	**Propellant and Pyrolant 2** Chair: **Yutaka Wada**	**B5**	**Explosion Safety 3** Chair: **Toshiharu Mizukaki**
13:20–13:40	A5-1	**Combustion-mode transition of a solid propellant rocket motor by nitrogen gas injection** Masafumi Tanaka, Japan	B5-1	**Development of energetic material fast cook-off testing for the new nato standard (AOP-4240)** Chong-Wei Ho, Taiwan
13:40–14:00	A5-2	**Performance evaluation of WAX-based hybrid-rocket solid fuel with added Mg-Al powder** Takayuki Fujita, Japan	B5-2	**Thermal decomposition behaviour in dry and humid conditions of single base propellants having different methyl violet test stabilities** Ayane Haba, Japan
14:00–14:20	A5-3	**Experimental investigation of combustion of ethanol-methylcellulose gel droplets with Al powder** Junyu Zhu, Japan	B5-3	**Stability of NC-based explosives, relation between bergman-junk-siebert test and methyl violet paper test** Ken Okada, Japan
14:20–14:40			B5-4	**Thermal safety evaluation in nitration of toluene with ionic liquid** Hiroaki Ono, Japan

14:40–14:50	BREAK		
14:50–15:50	**L3**	**Invited Lecture 3** Chair: **Shingo Date** **TKX-50: A new high explosive developed at LMU Munich** Thomas M. Klapötke Ludwig Maximilians University of Munich, Germany	
	A6	**Propellant, Pyrolant 3 and Pyrotechnics** Chair: **Yang Li, Yuichiro Izato**	
15:50–16:10	A6-1	**Detailed kinetic modeling for liquid-phase reactions of hydrazine nitrate based on quantum chemistry calculations** Yu-ichiro Izato, Japan	
16:10–16:30	A6-2	**Characterization of periodate binary pyrotechnic mixtures** Robert Matyas, Czech Republic	
16:30–16:50	A6-3	**Exothermic reaction of fine and coarse magnesium powders with water** Yosuke Nishiwaki, Japan	
16:50–17:10	A6-4	**Synthesis of dinitramide salts with small continuous reactor** Hiroki Matsunaga, Japan	
16:50–17:30	A6-5	**Characterization of pyrotechnic Igniter based on heat flux and propellant ignition delay** Sumit Sarma, India	

Nov. 18 (Thu)

9:00–10:00	**L4**	**Invited Lecture 4** Chair: **Shiro Kubota** **Quantification of dynamic fracture properties of rocks subjected to confinements** Kaiwen Xia University of Toronto, Canada		
10:00–10:10	BREAK			
	A7 **Blasting** Chair: **Yuji Ogata**		**B7** **Thermal Behavior 1** Chair: **Satoru Yoshino**	
10:10–10:30	A7-1	**Evaluation of dynamic tensile fracture behavior of rocks by digital image correlation method** Tei Saburi, Japan	B7-1	**Analysis of thermal destabilization mechanism of ammonium nitrate/ammonium chloride mixtures** Kota Watanabe, Japan
10:30–10:50	A7-2	**Influence of partially dense regions near the free surface on stress wave interference and crack propagation in laboratory blasting tests** Yoshiaki Takahashi, Japan	B7-2	**Hazard evaluation of chlorosilanes based on thermodynamic data** Masaya Sato, Japan
10:50–11:10	A7-3	**Study on improvement of washing effect using underwater explosion phenomenon** Hayate Ueda, Japan	B7-3	**Thermal behaviour of potassium periodate and mixtures thereof containing fuels and metal oxides** Yuka Sakae, Japan
11:10–11:30	A7-4	**Unsteady interaction between underwater explosion and the concave curved wall** Yoshiteru Anshi, Japan	B7-4	**Detailed reaction simulation incorporating evaporation model of ammonium dinitramide** Yuto Kubota, Japan
11:30–11:50	A7-5	**Study of the controlled blasting method for concrete using GANSIZER®** Kenji Murata, Japan	B7-5	**Evolved gas analysis of ammonium dinitramide and hydroxyethylhydrazinium nitrate mixture** Kento Shiota, Japan
11:50–13:00	LUNCH			
13:00–14:00	**L5**	**Invited Lecture 5** Chair: **Katsumi Katoh** **Recent topics in scientific study on fireworks** Mitsuru Arai The University of Tokyo, Japan		
14:00–14:10	BREAK			
	A8 **Fireworks** Chair: **Mieko Kumasaki**		**B8** **Propellant and Pyrolant 4** Chair: **Hiroki Matsunaga**	
14:10–14:30	A8-1	**Quantitative analysis of $KClO_4$ reduction by Ti in fireworks composition** Kouta Odagiri, Japan	B8-1	**Electrolysis and ignition characteristics of HAN-based monopropellant** Toshiyuki Katsumi, Japan
14:30–14:50	A8-2	**Influence of charcoal properties on the burning rate of black powder** Kenta Yuminaga, Japan	B8-2	**Thermal analytical screening of effective catalysts for the ignition of high energy ionic liquid propellants** Noboru Itouyama, Japan
14:50–15:10	A8-3	**Thermal and evolved gas analysis for oxidation of carbon in senko-hanabi** Yukino Watanabe, Japan	B8-3	**Visualized image analysis of electrolysis-Ignition of ammonium dinitramide based ionic liquid propellants using a high-speed camera** Kiichiro Iguchi, Japan

15:10–15:30	A8-4	**Analysis on bursting mechanism of carbon steel sparks** Taro Kimura, Japan	B8-4	**"Tandem-action" ferrocenyl iodocuprates promoting low temperature hypergolic ignitions of "green" EIL–H_2O_2 bipropellants** Michael Gozin, Israel
15:30–15:40	BREAK			
	A9 Thermal Behavior 2 Chair: **Shogo Tomiyama**		**B9 Shock Compression of Condenced Matter 2** Chair: **Kazutaka Kitagawa**	
15:40–16:00	A9-1	**Stability of explosives under continued laser pulse exposure** Thomas de Prinse, Australia	B9-1	**Numerical investigation of reaction zone for steady state detonation of solid explosives** Shiro Kubota, Japan
16:00–16:20	A9-2	**Thermal runaway propagation mechanism analysis of multiple lithium-ion batteries** Tomoya Suzuki, Japan	B9-2	**Basic study on the processing of thick magnesium alloy plate by impact forming method** Masatoshi Nishi, Japan
16:20–16:40	A9-3	**Effect of ozone on the thermal decomposition behavior of guanidine nitrate** Kyohei Amano, Japan	B9-3	**Metal oxides as a sensitizer in laser initiation of energetic materials** Anton S. Zverev, Russia
16:40–17:00	A9-4	**Energetic cocrystal of 1H-tetrazole/sodium perchlorate** Kazuki Inoue, Japan		
17:00–17:20	A9-5	**Effect of mixing condition of ammonium nitrate aqueous solution on cyclic thermal behavior of some phase-stabilized ammonium nitrates** Shingo Date, Japan		
17:20–18:00	Closing			