



The 6th International Symposium on Energetic Materials and their Applications

TECHNICAL PROGRAM

November 6-10, 2017

Sakura Hall, Tohoku University, Sendai, JAPAN

Monday Nov. 6			
15:00	Check-In & On-Site Registration		
17:30			
17:30	Welcome Reception		
19:30			
Tuesday Nov. 7			
8:30	SYMPOSIUM OPENING SESSION		
9:00			
9:00	INVITED PLENARY LECTURE 1, Sakura Hall Chair: S. Sato Prof. Ibolja Cernak: Military and Veterans' Clinical Rehabilitation Medicine, University of Alberta, CANADA <i>"Mechanisms and Biological Consequences of the Blast-Body/Head Interactions"</i>		
9:50	Coffee Break Sakura Hall, 1F		
10:15			
	Sakura Hall	Room #2	Room #3
	O01 Solid Propellant 1 –Aging & Mechanical Property – Chairs: B. M. Kosowski, M. Tanaka	O02 Gas Safety Chairs: L. Qiao, S. Maeda	O03 Blast Injury Chairs: I. Cernak, T. Matsumura
10:15	O01-1 Aluminum ageing: effects on the powder metal content and reactivity C. Paravan, A. Verga, S. Dossi, F. Maggi, and L. Galfetti	O02-1 Three-dimensional numerical investigations of high pressure hydrogen jets with an AMR mesh technology X. Tang, A. K. Hayashi, M. Asahara, N. Tsuboi, and E. Dzieminska	O03-1 Fundamental research on blast simulator for blast injury research A. Kato, Y. Aoki, M. Mori, and T. Mizukaki
10:40			

10:40 11:05	O01-2 Study on consumption and characterization of stabilizer of aged NEPE propellant <u>T. Tao</u> , X. Sui, S. Li, and N. Wang	O02-2 Onset of cellular instabilities in spherically expanding hydrogen-air flames <u>Y. Sato</u> , S. Tanaka, W. Kim, T. Johzaki, and T. Endo	O03-2 Characteristics of underwater shock waves induced by nanosecond electric discharge and micro-explosive for medical applications <u>B. Hosseini</u> , T. Ikebe, A. Guionet, S.M. Nejad, T. Hide, V. Menezes, and H. Hosseini
11:05 11:30	O01-3 The effect of nanoparticles deagglomeration and encapsulation on the characteristics of aluminum nanopowder oxidation <u>A. Vorozhtsov</u> , N. Rodkevich, E. Glazkova, A. Pervikov, and M. Lerner	O02-3 Numerical Analysis on Shock Flame Interaction in Hydrocarbon/Oxygen Premixed Gas -Difference in the Propagation Types- <u>M. Iwai</u> , K. Yoshida, Y. Morii, N. Tsuboi, A.K. Hayashi, T. Obara, and S. Maeda	O03-3 Investigation of oxidative stress in the rat brain exposed to a laser-induced shock wave <u>S. Kawachi</u> , M. Sakamaki, C. Onuma, Y. Komuta, I. Nishidate, K. Kaida, H. Tsuda, and S. Sato
11:30 11:55	O01-4 Influence of strain rate on the mechanical behavior of HTPB propellant: Characterization and predictive model of structure-property relations <u>H. Zhou</u> , S. Li, K. Xie, and N. Wang		O03-4 Mechanisms of primary blast-induced traumatic brain injury: Insights from 30 years of shock-wave research at Tohoku University <u>A. Nakagawa</u> , K. Ohtani, K. Takayama, and T. Tominaga
11:55 13:10	LUNCH		
	Sakura Hall	Room #2	Room #3
	O04 Solid Propellant 2 - Metal Combustion – Chairs: <u>A. Vorozhtsov</u> , K. Takahashi	O05 Detonation Chairs: C. R. Pulham, T. Homae	O06 Aerosol Safety Chairs: A. Cumming, T. Endo
13:10 13:35	O04-1 Experimental investigation of agglomerate sizes of burning aluminized solid propellant M. Liu, <u>S. Li</u> , Z. Liu, X. Sui, and N. Wang	O05-1 Numerical investigation of relationship between reaction rate and locus of reaction in P-V plane for high explosives <u>S. Kubota</u> , T. Saburi, and K. Nagayama	O06-1 Sedimentation of harmful and dangerous aerosols by means of electrostatic charged particles of a sorbent O. Kudryashova and <u>M. Stepkina</u>
13:35 14:00	O04-2 Agglomeration characteristics of metal particles in AP composite propellants <u>K. Matsumoto</u> , A. Iwasaki, and H. Habu	O05-2 Co-crystallisation of energetic materials <u>S. R. Kennedy</u> and C. R. Pulham	O06-2 Dispersivity dynamics of aerosol media <u>A. Pavlenko</u> , E. Metsler, S. Titov, E. Muravlev, and N. Korovina
14:00 14:25	O04-3 Withdraw	O05-3 Equation of state for detonation product gases compatible with cylinder tests <u>K. Nagayama</u> and S. Kubota	O06-3 Experimental laser system to study disperse parameters of aerosol media <u>S. Titov</u> , E. Metsler, <u>A. Pavlenko</u> , E. Muravlev, N. Korovina, V. Arkhipov, and S. Bondarchuk

14:25 14:50	O04-4 Boron agglomeration in combustion of boron-containing solid propellants <u>S. Rashkovskiy</u>	O05-4 Transit of a detonation wave through a diverging nozzle <u>K. Imoto</u> , S. Kuwajima, R. Kobayashi, K. Okada, T. Johzaki, W. Kim, and T. Endo	
14:50 15:15	Coffee Break, Sakura Hall 1F		
15:15 16:05	INVITED PLENARY LECTURE 2, Sakura Hall Chair: A. Miyake Dr. Wim P.C. de Klerk: TNO, THE NETHERLANDS <i>“Energetic Materials; Synthesis - Characterization - Lifetime and Operational Use”</i>		
16:05 16:30	Coffee Break Sakura Hall 1F		
	Sakura Hall	Room #2	Room #3
	O07 Initiation Chairs: S. Atroshenko, S. Kubota	O08 Analysis & Detection of Explosives Chairs: W. P.C. de Klerk, J. Nakamura	O09 HEMs for Propulsion Chairs: C.Paravan, M. Kumasaki
16:30 16:55	O07-1 A computational study of the effect of grain size distribution on shock initiation of pressed HMX powder <u>Y. Wei</u> , <u>Y. Horie</u> , C. Molek, E. Welle, and M. Zhou	O08-1 Supersensitive detection of explosives in unattended luggage storage <u>V. M. Gruznov</u> , M. N. Baldin, and M. V. Pryamov	O09-1 Reactive materials to enhance energy in future munitions <u>S. Peiris</u>
16:55 17:20	O07-2 The role of grit particle contamination in frictional ignition of dropped explosives <u>G. R. Parker</u> , M. D. Holmes, B. Broilo, E. Heatwole, and P. Dickson	O08-2 Walkthrough-type explosives trace detector <u>Y. Takada</u> , S. Kumano, M. Sugiyama, H. Mizuno, H. Nagano, T. Nojiri, T. Ito, M. Namai, and H. Hanami	O09-2 Synthesis, characterization and properties of a new nitrogen-rich ANQ-based salt: 1-amino-2-nitroguanidinium 3,5-dinitro-1,2,4-triazole <u>J. Xinghui</u> , J. Zhou, and B. Hu
17:20 17:45	O07-3 Initiation of explosive reactions in high energy materials with nanosize additives by a high-voltage discharge <u>S. Rashkovskiy</u> and G. Savenkov	O08-3 Gas retention in a heated plastic bonded explosive (LX-14) <u>M. L. Hobbs</u> , M. J. Kaneshige, W. W. Erikson, and K. T. Miers	O09-3 Control synthesis of Al/MO composite materials to realize special structure nano-energetic materials <u>S. He</u> , J. Chen, Z. Qiao, and J. Li
17:45 18:10	O24-2 Development of pulse-detonation spraying gun with expanded exit <u>H. Mochizuki</u> , K. Kokubo, T. Takabatake, T. Johzaki, W. Kim, T. Endo, K. Matsuoka, Y. Takeyasu, and T. Hanafusa	O08-4 Global request for a search of forms of perspective cooperation of Russia and Japan in the high-energy sector for fight against the international terrorism <u>E. Danilova</u> and A. Vorozhtsov	O09-4 Energetic materials under pressure: A study combining diffraction and DFT-D calculations <u>S. Konar</u> , S. Hunter, C. Henderson, P. L. Coster, C. A. Morrison, D. I. A. Millar, W. G. Marshall, A. Kleppe, H. Maynard-Casely, and C. R. Pulham

Wednesday Nov. 8

	Sakura Hall	Room #2	Room #3
	O10 Solid Propellant 3 - Propulsion System – Chairs: S. Rashkovskiy, K. Hori	O11 Pyrotechnics 1 Chairs: S. Peiris, H. Torikai	O12 Shock Compression Chairs: S. R. Kennedy, K. Hokamoto
8:40 9:05	O10-1 Burning characteristics of non-self-combustible solid propellants controlled by N ₂ O supply K. Fukuda, R. Irikawa, and T. Tachibana	O11-1 Velocities and initiating properties of several typical multi-layer flyers driven by ns-class pulsed laser H. Zhang, L. Wu, W. Guo, S. Chen, and R. Shen	O12-1 Fracture of the PMMA with the help of electrical explosion of conductors S. Atroshenko, V. Morozov, V. Kats, D. Gribanov, and Y. Petrov,
9:05 9:30	O10-2 Numerical modeling and studies of ignition transient for small solid rocket motor in high rotating overload D. Guan, S. Li, B. Yang, X. Sui, and N. Wang	O11-2 Exploring the enhanced reactivity of nanosized titanium toward oxidation N. V. Muravyev, K. A. Monogarov, A. N. Zhigach, M. L. Kuskov, I. V. Fomenkov, and A. N. Pivkina	O12-2 Extended Solids under Extreme Pressure and Electromagnetic Conditions J. Y. B. Kim and E. N. Enig
9:30 9:55	O10-3 Ignition delay, erosive burning and other animals – lessons learnt about transient phenomena at IMI systems J. Sivan, Y. Solomon, and O. Peles	O11-3 Synthesis of 3D porous hollow Co ₃ O ₄ and its application in metastable intermolecular composites J. Wang, Y. Yang, Z. Qiao, and G. Yang	O12-3 Pressure limits for powder compaction of Aluminium-based composites S. Vorozhtsov and O. Kudryashova
9:55 10:20	O10-4 Combustion mode modulation of a solid-propellant rocket motor by inert gas injection control M. Yamakami, Y. Meichin, and M. Tanaka	O11-4 Production of powder materials using low-temperature plasma and their application I. Zhukov, S. Bondarchuk, A. Vorozhtsov, V. Platov, and S. Vorozhtsov	O12-4 Explosive fragmentation of Gallium-embrittled Aluminum alloy cylinders J. Rudolphi
10:20 10:45	O10-5 Experimental study on igniter of solid micro thruster Z. Li and X. Liu	O11-5 Results of outfit components development for low-temperature gas generators of various purposes N. Y. Dochilov, B. V. Pevchenko, and A. B. Vorozhtsov	O12-5 Surface coating by tungsten carbide particles on a metal substrate by high velocity collision S. Tanaka, A. Mori, H. Oda, D. Inao, and K. Hokamoto
10:45 11:10	Coffee Break Sakura Hall 1F		
11:10 12:00	INVITED PLENARY LECTURE 3, Sakura Hall Chair: K. Hori Fellow Alice Atwood: NAWCWD/China Lake, USA “The Influence of Combustion Properties on the Hazards Potential of HD1.3 Materials”		
12:00 13:30	LUNCH		
13:30 19:30	EXCURSION TO “MATSUSHIMA” Night Cruise & Light Illumination of Matsushima Islands Bus starts 13:30 at Sakura Hall		

Thursday Nov. 9

	Sakura Hall	Room #2	Room #3
	O13 Solid Propellant 4 – Combustion – Chairs: A. Atwood, Y. Wada	O14 Pyrotechnics 2 Chairs: J. Sivan, H. Taniguchi	O15 Safety 1 Chairs: M. L. Hobbs, S. Date
8:40 9:05	O13-1 Burning behaviour with respect to initial grain temperature: Stojan Vessel in comparison with subscale rocket motor A. Maraden, P. Stojan, R. Matyáš, and L. Čermák	O14-1 ⇒ Change to P-67	O15-1 Thermal hazard analysis for mixing chemicals using small-scale Dewar vessels R. Suzuki, Y. Izato, S. Yoshino, T. Komoriya, K. Sakamoto, and A. Miyake
9:05 9:30	O13-2 Ignition and combustion study of HEM containing bimetal powder A. Korotkikh, V. Arkhipov, and I. Sorokin	O14-2 The study of new aerosol generator of extinguisher S. Tomiyama, Y. Takatsuka, A. Murata, W. Kobayashi, T. Endo, M. Azuma, S. Tomiyoshi, and A. Kikkawa	O15-2 Thermal hazard analysis for 1-butyl-3-methylimidazolium acetate and copper (II) oxide mixture N. Yamaki, K. Shiota, Y. Izato, and A. Miyake
9:30 9:55	O13-3 Flame speed enhancement of a solid monopropellant using functionalized carbon-based microstructures S. Jain and L. Qiao	O14-3 Design of long stroke ejection device based on traveling charge structure L. Jing, J. Chen, Y. Han, Y. Fang, C. Gu, and Q. Liu	O15-3 Analysis of thermal hazard in toluene nitration process using ionic liquids T. Shiratori, K. Nishi, Y. Nishiwaki, S. Matsue, and M. Kumasaki
9:55 10:20	O13-4 Combustion behavior and mechanism of energetic nitrogen-rich salts of 5,5'-azotetrazole V.P. Sinditskii, L.E. Bogdanova, A.I. Levshenkov, and V. Yu. Egorshv	O14-4 Mathematical model formulation and validation for split-type low shock separation bolt using initiator D. Hwang, J. Han, Y. Lee, and D. Kim	O15-4 Thermal decomposition of di-tert-butylperoxide measured with calorimeter Y. Iwata
10:20 10:45	O13-5 Highly Enhanced Thermal Performance of Ammonium Perchlorate Confined in Three-Dimensional Hierarchically Ordered Porous Carbon J. Chen, B. Huang, G. C. Yang, and H. Huang	O14-5 Blast extinguishment of a methane-air jet diffusion flame using a silver azide pellet R. Sekikawa and H. Torikai	
10:45 11:10	Coffee Break Sakura Hall 1F		
11:10 12:00	INVITED PLENARY LECTURE 4, Sakura Hall Chair: A. K. Hayashi Prof. Elaine Oran: University of Maryland, USA <i>“Shock-Flame Complexes and Their Role in Explosions”</i>		
12:00 12:15	Group Photo. in front of Sakura Hall		

12:15 13:30	LUNCH		
	Sakura Hall	Room #2	Room #3
	O16 Gas Detonation Chairs: E. Oran, N. Tsuboi	O17 Green Propellant Chairs: V. Sinditskii, K. Okada	O18 Safety 2 Chairs: V. M. Gruznov, Y. Iwata
13:30 13:55	O16-1 Numerical analysis on detonation transition in the channel with repeated obstacles – Influence of scale effects and artificial thickening flame – A. Ago, N. Tsuboi, and A. K. Hayashi	O17-1 Thermal decomposition of HAN-based monopropellant mixture using advanced mass spectrometer and high speed pyrolysis R. Amrousse, T. Katsumi, Y. Mishima, and K. Hori	O18-1 Thermal cycle study of some phase-stabilized ammonium nitrate S. Date, S. Shoya, A. Toda, and Y. Tanaka
13:55 14:20	O16-2 Effect of surface roughness of a channel wall on flame propagation and detonation transition in a fuel-oxygen mixture S. Maeda, M. Fujisawa, S. Ienaga, K. Hirahara, and T. Obara	O17-2 Validation for a condensed phase reaction model of hydroxylammonium nitrate aqueous based on kinetic analysis K. Kuroki, Y. Izato, and A. Miyake	O18-2 Prediction of thermal stabilities of azole compounds S. Yoshino, T. Komoriya, and K. Sakamoto
14:20 14:45	O16-3 Flame propagation and initiation of detonation in a two-dimensional annular channel with cylindrical obstacles H. Sakai, E. Dzieminska, A. K. Hayashi, and Y. Tamauchi	O17-3 Detailed reaction simulation for thermal decomposition of ammonium dinitramide (ADN) Y. Izato and A. Miyake	O18-3 Pre-clinical research results of antituberculous remedy based on oxidized dextrane and hydrazide of isonicotinic acid B. V. Pevchenko, A. B. Vorozhcov, V. N. Belyaev, A. V. Frolov, and D. Y. Glazev
14:45 15:10	O16-4 Detonation initiation in annular chamber with cylindrical obstacles K. Sato, E. Dzieminska, A. K. Hayashi, and Y. Tamauchi	O17-4 Thermal decomposition and combustion behavior of high energy ionic liquid based on ammonium dinitramide H. Matsunaga, K. Katoh, H. Habu, M. Noda, and A. Miyake	O18-4 Growing Bubble Leading Spark Ramifications in Senko-hanabi C. Inoue, Y. Izato, A. Miyake, and M. Koshi
15:10 15:35	O16-5 An experimental study on effects of chamber size on behavior of rotating detonation waves W. Kurata, A. Yokota, D. Ikema, H. Kawana, and K. Ishii	O17-5 Evaluation on ignition characteristics of green monopropellants using laser-induced breakdown plasma T. Katsumi, M. Furusawa, T. Kitamura, and S. Kadowaki	
15:35 16:00	Coffee Break Sakura Hall 1F		
16:00 16:50	INVITED PLENARY LECTURE 5, Sakura Hall Chair: G. Mogi Prof. Sang-Ho Cho: Chonbuk National University, KOREA “Controlled blasting devices utilizing theremite charges and its applications to concrete demolition, rock bolts and dynamic loading machine”		
16:50 18:20	Poster Session Sakura Hall 1F		

Friday Nov. 10

	Sakura Hall	Room #2	Room #3
	O19 Advanced Propulsion Chairs: N. Wang, T. Katsumi	O20 Shock & Blastwave 1 Chairs: G. R. Parker, K. Ishii	O21 Safety 3 Chairs: B. C. Tappan, Y. Ogata
8:40 9:05	O19-1 CFD optimization of boron metallized ducted rocket ramjet combustor S. P. S. Pattnaik and N.K.S. Rajan	O20-1 Quantitative flow visualization of the blast wave from an underground magazine model using background-oriented schlieren T. Odagiri, T. Mizukaki, T. Matsumura, and K. Wakabayashi	O21-1 NTO: Synthesis, crystallization and applications G. Eck, C. Songy, M. Fourdinier, and B. Nouguez
9:05 9:30	O19-2 Investigation of viscoelasticity of the low melting point temperature thermoplastic fuel for the hybrid rocket Y. Kawabata, Y. Wada, N. Kato, K. Hori, and R. Nagase	O20-2 Optical measurements in visible and near-IR bands of composition C4 and argon flash hemispheres J. Rudolph, N. Kolb, and J. Stofleth	O21-2 Effect of moisture absorption on ignitability and thermal behavior of pyrotechnic compositions Y. Nishiwaki, T. Matsunaga, A. Shimada, and M. Kumasaki
9:30 9:55	O19-3 Experimental study on a long-time working solid-fuel scramjet combustor G. Fang, Z. Wei, C. Guo, Z. Wu, and N. Wang	O20-3 Application of CT-BOS to analysis of developing-blast-wave structure in early stage with a small high explosive T. Mizukaki, Y. Hayakawa, T. Odagiri, M. Ota, T. Matsumura, and K. Wakabayashi	O21-3 Influence of graphite content on ESD sensitiveness in potassium 4,6-dinitrobenzofuroxane (KDNBF) M. Zahálka, V. Pelikán, and R. Matyáš
9:55 10:20	O19-4 Combustion of solid-fuel in scramjet combustor with a flame holder S. Rashkovskiy, S. Yakush, and A. Baranov	O20-4 Field experiments on the blast wave propagation from an underground magazine model Y. Sugiyama, K. Wakabayashi, T. Matsumura, and Y. Nakayama	O21-4 Explosion strength by a collision of LOX and LNG D. Kim and S. Usuba
10:20 10:45	O19-5 Using polymeric fuel as an additive in WAX-based hybrid rocket fuel Y. Matsumoto, K. Kinoshita, K. Nakajima, and K. Takahashi	O20-5 Measuring the effect of in-situ tropical residual soil on shallow buried charge detonation blast intensity Z. A. Hassan, A. Ibrahim, and N. M. Nor	
10:45 11:10	Coffee Break Sakura Hall 1F		
11:10 12:00	INVITED PLENARY LECTURE 6, Sakura Hall Chair: S. Kubota Prof. Min Zhou: Georgia Institute of Technology, USA “Macroscopic ignition thresholds - microstructure relations for energetic materials under shock loading”		

12:00 13:15	LUNCH		
	Sakura Hall	Room #2	Room #3
	O22 Blasting Chairs: S-H. Cho, T. Matsunaga	O23 Shock & Blastwave 2 Chairs: J. J. Rudolphi, T. Mizukaki	O24 Safety 4 Chairs: M. Zhou, K. Kato
13:15 13:40	O22-1 Development and Application of Wireless Electronic Detonator System <u>S. Hikone</u> and Y. Tasaki	O23-1 Experiments and numerical simulation of shock wave propagation in pellet explosives and gap materials <u>S. Kubota</u> , T. Saburi, and K. Nagayama	O24-1 Evaluation of chemical modifications of RDX-like explosives for reduced sensitivity materials <u>B. C. Tappan</u> , R. W. Lebrun, P. W. Leonard, and M. Shorty
13:40 14:05	O22-2 Fundamental study on rock fracture mechanism induced by blasting in small-scale blasting tests <u>Y. Takahashi</u> , T. Saburi, T. Sasaoka, S. Wahyudi, S. Kubota, H. Shimada, and Y. Ogata	O23-2 Mitigation of blast wave from subsurface/underground magazine using water <u>T. Homae</u> , K. Yamada, Y. Sugiyama, K. Wakabayashi, T. Matsumura, and Y. Nakayama	O24-2 ⇒ Change to O07-4
14:05 14:30	O22-3 Evaluation of blast impact pressure by artificial joint condition using numerical analysis <u>Y. Noh</u> , H. Park, Y. Ko, H. Yang, and C. Suk	O23-3 Withdraw	O24-3 Cocrystallization of Trinitrotoluene (TNT) with Enhanced Safety <u>N. Sen</u> , S. Kennedy, and C. R. Pulham
14:30 14:55	O22-4 Withdraw	O23-4 Numerical investigation of the CFD/DEM model for the interaction between shock waves and granular layers <u>H. Ando</u> , A. Matsuo, and Y. Sugiyama	O24-4 Lean Flammability Limit of Pure Hydrocarbon Fuels and Alternative Aviation Fuels A. Li, G. Kilaz and <u>L. Qiao</u>
14:55 15:20	Coffee Break Sakura Hall 1F		
15:20 16:10	INVITED PLENARY LECTURE 7, Sakura Hall Chair: M. Arai Prof. Mitsuo Koshi: The University of Tokyo, JAPAN "Smoke generation in black powder combustion"		
16:10 16:30	Symposium Closing Session		
18:00 21:00	Gala Dinner at Hotel Westin All participants including students and accompanying persons can attend this Gala Dinner without extra charge.		

Poster Session

Thursday Nov. 9

16:50 18:20	Sakura Hall 1F
P-01	Critical conditions and explosion time for methane-air mix <u>Olga Kudryashova</u>
P-02	Numerical simulation of friction-induced ignition of solid propellant grains under high overload <u>Jun Gao</u>
P-03	Laser-driven photocatalytic process as a stimulus of the energetic material initiation <u>Anton Zverev</u>
P-04	Distribution and evolution of fine aerosols received by explosive method <u>Natalya Korovina</u>
P-05	On the effect of the shape of an underground magazine model on the peak overpressure distribution <u>Yuta Sugiyama</u>
P-06	The study concerning mass media news of explosion and fire accidents <u>Haruhiko Itagaki</u>
P-07	Case Study of Accidents of Explosives with PFA (XIII) <u>Shoko Abe</u>
P-08	Numerical analysis on shock resistant design of the explosion pit at Kumamoto University <u>Masatoshi Nishi</u>
P-09	Thermal decomposition behavior of nitrocellulose/acid mixtures in sealed and open systems <u>Katsumi Katoh</u>
P-10	Propagation Characteristics of Hydrogen-Air Premixed Flame in Swirling Flow <u>Makoto Asahara</u>
P-11	Explosive Detection Dogs — selected issues <u>Wawrzyniec Pniewski</u>
P-12	Expansion agent utilizing thermite reaction <u>Yusuke Kaji</u>
P-13	Fracture plane control blasting of a field scaled reinforced concrete block using the simplified charge holder <u>Yuichi Nakamura</u>
P-14	Experimental study on the potential to impact in the RC wall by small-scale blasting <u>Mieko Kumasaki</u>
P-15	Phase composition of bimetallic nanoparticles Al/Cu and Cu/Fe produced by an electric explosion of the two twisted wires <u>Marat Lerner</u>
P-16	Modeling for decomposition reactions of aqueous hydroxylammonium nitrate solution <u>Yu-ichiro Izato</u>

P-17	Spray combustion characteristics of DME blended light oil <u>Yuga Yamashita</u>
P-18	Influence of MnO₂ on burning characteristics of AN/AP-based propellant <u>Norihiro Tsuchiya</u>
P-19	Vapor pressure measurement of ammonium dinitramide binary mixtures using thermogravimetric analysis <u>Kento Shiota</u>
P-20	Synthesis of Poly-AMMO-PU as fuel-binder of a solid propellant <u>Hiroshi Shida</u>
P-21	Gasification behavior of ammonium dinitramide based ionic liquid propellants under low pressure condition <u>Mamoru Hayata</u>
P-22	Ignition Characteristics of ADN-based ionic liquid propellant <u>Noboru Itouyama</u>
P-23	Experimental Study on the Combustion Instabilities in Hybrid Rockets <u>Shigenori Imafuku</u>
P-24	Composite Propellant Kneading by Peristaltic Rubber Mixer and Improvement of Its Efficiency <u>Akihiro Iwasaki</u>
P-25	The influence of aluminum and ammonium perchlorate dispersion on characteristics of the laser ignition <u>Egor Forat</u>
P-26	Development of the SACRED FIRE TORCH for Tokyo Olympic in 1964 <u>Kenji Murata</u>
P-27	Application of the real time radioscopy for destructive testing of pyrotechnical delay unit used in ammunition <u>Radosław Warchoń</u>
P-28	Experimental validation for the Safe Separation of External Store from Military Aircraft <u>Azizullah Khan</u>
P-29	Investigation on the properties of interior pressure in a mortar <u>Masayuki Takagi</u>
P-30	Coal transfer facility fire at Taichung power plant-A case study <u>Yi-Feng Chen</u>
P-31	Burning rate test for small scale of pyrotechnic powders <u>Ikumi Matsui</u>
P-32	Automated optical-electronic complex for detection of traces of explosives <u>Anatolii Pavlenko</u>
P-33	Thermal stability of NCFN (Nitro Cellulose Nano Fiber) <u>Ken Okada</u>
P-34	Research of selected homogeneous solid rocket propellants properties after accelerated ageing <u>Michał Henryk Kaczorowski</u>

P-35	Diagnostic tests of propellants <u>Agnieszka Zmuda Golebiewska</u>
P-36	Simulation of rotating detonation engine by OpenFOAM <u>Masatake Yoshida</u>
P-37	Physical and Mechanical Properties of Aluminium Composites Produced by Shock Compression <u>Sergey Vorozhtsov</u>
P-38	Transition and detonation processes characterization with Braggfast, a new Fiber Bragg grating analysis system for energetic materials <u>MORICEAU Julien</u>
P-39	Dynamic Characteristics of Underwater Objects Induced by Electric Discharge <u>Hiroki Imaeda</u>
P-40	Shock temperature for metals satisfying the Rice-Walsh equation of state <u>Kunihito Nagayama</u>
P-41	Underwater shock wave generation phenomena by detonating a micro-explosive in a closed space <u>Kiyonobu Ohtani</u>
P-42	Structural and Mechanical Properties of Magnesium-based Materials Processed by Explosive Compaction <u>Anton Khrustalyov</u>
P-43	Mechanical Properties of Aluminium Composites under Shock Loading <u>Ilya Zhukov</u>
P-44	Mechanical properties of Ceramic Based on ZrO₂ — MgO under shock-wave loading <u>Ilya Zhukov</u>
P-45	Numerical analysis for the oblique collision of high velocity accelerated by a powder gun <u>Akihisa Mori</u>
P-46	Numerical simulation of underwater shock wave-bubble interaction by sharp interface method <u>Tomohiro Kamiya</u>
P-47	Combustion behavior of guanidine nitrate/basic copper nitrate <u>Miho Nakashima</u>
P-48	Combustion behavior of guanidine nitrate/basic copper nitrate/potassium perchlorate mixtures <u>Masaya Hirose</u>
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