



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 17:30	Check-In & On-Site Registration		
17:30 19:30	Welcome Reception		
Tuesday Nov. 7			
8:30 9:00	SYMPOSIUM OPENING SESSION		
9:00 9:50	INVITED PLENARY LECTURE 1, Sakura Hall Chair: S. Sato Prof. Ibolja Cernak: Military and Veterans’ Clinical Rehabilitation Medicine, University of Alberta, CANADA “Mechanisms and Biological Consequences of the Blast-Body/Head Interactions”		
9:50 10:15	Coffee Break Sakura Hall,1F		
	Sakura Hall	Room #2	Room #3
	001 Solid Propellant 1 –Aging & Mechanical Property – Chairs: B. M. Kosowski, M. Tanaka	002 Gas Safety Chairs: L. Qiao, S. Maeda	003 Blast Injury Chairs: I. Cernak, T. Matsumura
10:15 10:40	001-1 Aluminum ageing: effects on the powder metal content and reactivity C. Paravan, A. Verga, S. Dossi, F. Maggi, and L. Galfetti	002-1 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	003-1 Fundamental research on blast simulator for blast injury research A. Kato, Y. Aoki, M. Mori, and T. Mizukaki

10:40 11:05	001-2 Study on consumption and characterization of stabilizer of aged NEPE propellant <u>T. Tao</u> , X. Sui, S. Li, and N. Wang	002-2 Onset of cellular instabilities in spherically expanding hydrogen-air flames <u>Y. Sato</u> , S. Tanaka, W. Kim, T. Johzaki, and T. Endo	003-2 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	001-3 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	002-3 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	003-3 Investigation of oxidative stress in the rat brain exposed to a laser-induced shock wave <u>S. Kawauchi</u> , M. Sakamaki, C. Onuma, Y. Komuta, I. Nishidate, K. Kaida, H. Tsuda, and S. Sato
11:30 11:55	001-4 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		003-4 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
	004 Solid Propellant 2 - Metal Combustion – Chairs: A.Vorozhtsov, K. Takahashi	005 Detonation Chairs: C. R. Pulham, T. Homae	006 Aerosol Safety Chairs: A. Cumming, T. Endo
13:10 13:35	004-1 Experimental investigation of agglomerate sizes of burning aluminized solid propellant M. Liu, <u>S. Li</u> , Z. Liu, X. Sui, and N. Wang	005-1 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	006-1 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	004-2 Agglomeration characteristics of metal particles in AP composite propellants <u>K. Matsumoto</u> , A. Iwasaki, and H. Habu	005-2 Co-crystallisation of energetic materials <u>S. R. Kennedy</u> and C. R. Pulham	006-2 Dispersivity dynamics of aerosol media <u>A. Pavlenko</u> , E. Metsler, S. Titov, E. Muravlev, and N. Korovina
14:00 14:25	004-3 Withdraw	005-3 Equation of state for detonation product gases compatible with cylinder tests <u>K. Nagayama</u> and S. Kubota	006-3 Experimental laser system to study disperse parameters of aerosol media <u>S. Titov</u> , E. Metsler, A. Pavlenko, E. Muravlev, N. Korovina, V. Arkhipov, and S. Bondarchuk

14:25 14:50	004-4 Boron agglomeration in combustion of boron-containing solid propellants <u>S. Rashkovskiy</u>	005-4 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
	007 Initiation Chairs: S. Atroshenko, S. Kubota	008 Analysis & Detection of Explosives Chairs: W. P.C. de Klerk, J. Nakamura	009 HEMs for Propulsion Chairs: C.Paravan, M. Kumasaki
16:30 16:55	007-1 A computational study of the effect of grain size distribution on shock initiation of pressed HMX powder Y. Wei, <u>Y. Horie</u> , C. Molek, E. Welle, and M. Zhou	008-1 Supersensitive detection of explosives in unattended luggage storage <u>V. M. Gruznov</u> , M. N. Baldin, and M. V. Pryamov	009-1 Reactive materials to enhance energy in future munitions <u>S. Peiris</u>
16:55 17:20	007-2 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	008-2 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	009-2 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	007-3 Initiation of explosive reactions in high energy materials with nanosize additives by a high-voltage discharge <u>S. Rashkovskiy</u> and G. Savenkov	008-3 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	009-3 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 N₂O supply <u>K. Fukuda</u> , R. Irikawa, and T. Tachibana	O11-1 Withdraw	O12-1 Fracture of the PMMA with the help of electrical explosion of conductors <u>S. Atroshenko</u> , V. Morozov, V. Kats, D. Gribov, 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 <u>D. Guan</u> , S. Li, B. Yang, X. Sui, and N. Wang	O11-2 Exploring the enhanced reactivity of nanosized titanium toward oxidation <u>N. V. Muravyev</u> , 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 <u>J. Y. B. Kim</u> 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 <u>J. Sivan</u> , Y. Solomon, and O. Peles	O11-3 Synthesis of 3D porous hollow Co₃O₄ and its application in metastable intermolecular composites <u>J. Wang</u> , Y. Yang, Z. Qiao, and G. Yang	O12-3 Pressure limits for powder compaction of Aluminium-based composites S. Vorozhtsov and <u>O. Kudryashova</u>
9:55 10:20	O10-4 Combustion mode modulation of a solid-propellant rocket motor by inert gas injection control <u>M. Yamakami</u> , Y. Meichin, and M. Tanaka	O11-4 Production of powder materials using low-temperature plasma and their application <u>I. Zhukov</u> , S. Bondarchuk, A. Vorozhtsov, V. Platov, and S. Vorozhtsov	O12-4 Explosive fragmentation of Gallium-embrittled Aluminum alloy cylinders <u>J. Rudolphi</u>
10:20 10:45	O10-5 Experimental study on igniter of solid micro thruster <u>Z. Li</u> 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 <u>A. B. Vorozhtsov</u>	O12-5 Surface coating by tungsten carbide particles on a metal substrate by high velocity collision <u>S. Tanaka</u> , 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 solidmonopropellant 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. Sinditskij, 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	013-5 Highly Enhanced Thermal Performance of Ammonium Perchlorate Confined in Three-Dimensional Hierarchically Ordered Porous Carbon <u>J. Chen</u> , B. Huang, G. C. Yang, and H. Huang	014-5 Blast extinguishment of a methane-air jet diffusion flame using a silver azide pellet <u>R. Sekikawa</u> 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
	016 Gas Detonation Chairs: E. Oran, N. Tsuboi	017 Green Propellant Chairs: V. Sinditskii, K. Okada	018 Safety 2 Chairs: V. M. Gruznov, Y. Iwata
13:30 13:55	016-1 Numerical analysis on detonation transition in the channel with repeated obstacles – Influence of scale effects and artificial thickening flame – <u>A. Ago</u> , N. Tsuboi, and A. K. Hayashi	017-1 Thermal decomposition of HAN-based monopropellant mixture using advanced mass spectrometer and high speed pyrolysis R. Amrousse, <u>T. Katsumi</u> , Y. Mishima, and K. Hori	018-1 Thermal cycle study of some phase-stabilized ammonium nitrate <u>S. Date</u> , S. Shoya, A. Toda, and Y. Tanaka
13:55 14:20	016-2 Effect of surface roughness of a channel wall on flame propagation and detonation transition in a fuel-oxygen mixture <u>S. Maeda</u> , M. Fujisawa, S. Ienaga, K. Hirahara, and T. Obara	017-2 Validation for a condensed phase reaction model of hydroxylammonium nitrate aqueous based on kinetic analysis <u>K. Kuroki</u> , Y. Izato, and A. Miyake	018-2 Prediction of thermal stabilities of azole compounds <u>S. Yoshino</u> , T. Komoriya, and K. Sakamoto
14:20 14:45	016-3 Flame propagation and initiation of detonation in a two-dimensional annular channel with cylindrical obstacles <u>H. Sakai</u> , E. Dzieminska, A. K. Hayashi, and Y. Tamauchi	017-3 Detailed reaction simulation for thermal decomposition of ammonium dinitramide (ADN) <u>Y. Izato</u> and A. Miyake	018-3 Withdraw

14:45 15:10	O16-4 Detonation initiation in annular chamber with cylindrical obstacles <u>K.Sato</u> , E. Dzieminska, A. K. Hayashi, and Y. Tamauchi	O17-4 Thermal decomposition and combustion behavior of high energy ionic liquid based on ammonium dinitramide <u>H. Matsunaga</u> , K. Katoh, H. Habu, M. Noda, and A. Miyake	O18-4 Growing Bubble Leading Spark Ramifications in Senko-hanabi <u>C. Inoue</u> , 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 <u>W. Kurata</u> , A. Yokota, D. Ikema, H. Kawana, and K. Ishii	O17-5 Evaluation on ignition characteristics of green monopropellants using laser-induced breakdown plasma <u>T. Katsumi</u> , 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 <u>S. P. S. Pattnaik</u> and N.K.S. Rajan	O20-1 Quantitative flow visualization of the blast wave from an underground magazine model using background-oriented schlieren <u>T. Odagiri</u> , T. Mizukaki, T. Matsumura, and K. Wakabayashi	O21-1 NTO: Synthesis, crystallization and applications <u>G. Eck</u> , C. Songy, M. Fourdinier, and B. Noguez
9:05 9:30	O19-2 Investigation of viscoelasticity of the low melting point temperature thermoplastic fuel for the hybrid rocket <u>Y. Kawabata</u> , 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 <u>J. Rudolph</u> , N. Kolb, and J. Stofleth	O21-2 Effect of moisture absorption on ignitability and thermal behavior of pyrotechnic compositions <u>Y. Nishiwaki</u> , T. Matsunaga, A. Shimada, and M. Kumasaki

9:30 9:55	O19-3 Experimental study on a long-time working solid-fuel scramjet combustor <u>G. Fang</u> , Z. Wei, C. Guo, Z. Wu, and N. Wang	O20-3 Withdraw	O21-3 Influence of graphite content on ESD sensitiveness in potassium 4,6-dinitrobenzofuroxane (KDNBF) <u>M. Zahálka</u> , V. Pelikán, and R. Matyáš
9:55 10:20	O19-4 Combustion of solid-fuel in scramjet combustor with a flame holder <u>S. Rashkovskiy</u> , S. Yakush, and A. Baranov	O20-4 Field experiments on the blast wave propagation from an underground magazine model <u>Y. Sugiyama</u> , K. Wakabayashi, T. Matsumura, and Y. Nakayama	O21-4 Explosion strength by a collision of LOX and LNG <u>D. Kim</u> and S. Usuba
10:20 10:45	O19-5 Using polymeric fuel as an additive in WAX-based hybrid rocket fuel <u>Y. Matsumoto</u> , 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 <u>Z. A. Hassan</u> , 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. Rudolph, 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	Withdraw
P-03	Withdraw
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	Withdraw
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 Warchol</u>
P-28	Withdraw
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 NCNF (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>
P-49	Thermal Behavior Variation of Tetrazole Derivatives and Electron Acceptors Mixture <u>Yohei Takanohashi</u>
P-50	Experimental investigation of washing effect for textile using the underwater explosion <u>Kazutaka Kitagawa</u>
P-51	Study of the blast wave ejected from the semi-sealed concrete structure <u>Yuji Kubota</u>
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