This workshop is supported by Japan Aerospace Exploration Agency (JAXA), Space Strategy Fund, SX Research and Development Site, JPJXSSF24MX17004.

IWDP 2026 JAPAN, May 4 - 8

Daily Program & Events

Tentative 21 April, 2026

Time		Activity
Monday May 4 (Day 1)		
16:30		Registration in front of HUB
17:00	19:00	**Welcome Party at HUB**
19:00		Free time
Tuesday May 5 (Day 2)		
8:30		Door Open & Registration
9:00	9:10	Welcome remarks
9:10	9:45	Keynote Speech
9:45	10:35	Session Tu-1 **[Pressure gain Detonation]**
10:35	10:50	Short Break
10:50	11:55	Session Tu-2 **[Fundamental Study of Detonation]**
11:55	13:25	Lunch
13:25	14:30	Session Tu-3 **[Numerical Modeling of Detonation]**
14:30	15:41	Short Presentation and Poster Session
15:41	16:11	Session Tu-4 **[Heat Transfer Problems]**
16:11	16:21	Short Break
16:21	17:26	Session Tu-4 **[Heat Transfer Problems]**
Wednesday May 6 (Day 3)		
8:30		Door Open & Registration
9:00	10:30	Session W-1 **[Numerical Modeling of RDE]**
10:30	10:45	Short Break
10:45	12:15	Session W-2 **[Fundamental Study of RDE]**
12:15	13:45	Lunch
13:45	14:30	Session W-3 **[Combustion Chemistry in Detonation Propulsion]**
14:30	15:38	Short Presentation and Poster Session
15:38	17:23	Session W-4 **[Air-breathing Operation and Launch Projects]**
Thursday May 7 (Day 4)		
8:30		Door Open & Registration
9:00	10:05	Session Th-1 **[Measurements and Diagnostics]**
10:05	10:20	Short Break
10:20	12:05	Session Th-2 **[Operability of RDE]**
12:05	13:35	Lunch
13:35	15:05	Session Th-3 **[Performance of RDE]**
15:05	16:13	Short Presentation and Poster Session
16:13	17:18	Session Th-4 **[High-Fidelity Simulations]**
17:45		Door Open
18:00	20:00	**Banquet at Faculty Lounge**
Friday May 8 (Day 5)		
11:15		Door Open
11:30	14:00	**Farewell Party at TERME**
14:00	17:00	**Yokohama National Univ. Lab Tour** *Bus leaves at 14:00
Saturday May 9 (Day 6)		
13:00	16:00	**Nagoya Univ. Lab Tour** *Please meet at the venue.

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IWDP2026 : Technical Program

April 21, 2026

Tuesday May 5 (Day 2)				
Time		**Title**	**Authers**	**Code**
9:00	9:10	Welcome Remarks	A.koichi Hayashi	
		Keynote Speech	**Chair: Jiro Kasahara**	
9:10	9:45	Explosive Encounter: Shock-droplet interactions and multiphase detonation	Hai Wang	
Session Tu-1		**Pressure gain Detonation**	**Chair: Mirko Gamba**	
9:45	10:00	Thermodynamic considerations on the feasibility of achieving pressure gain in rotating detonation combustors (invited talk)	Mirko Gamba, Alex Feleo	
10:00	10:15	Numerical Study of RDE Configuration Effect on Pressure Gain Performance	A. Koichi Hayashi, Takumi Ito, Michal Kawalec, Nobuyuki Tsuboi, Kohei Ozawa, Kazuhiro Ishii	106
10:15	10:35	Discussion		
10:35	10:50	Short Break		
Session Tu-2		**Fundamental Study of Detonation**	**Chair: Ken Matsuoka**	
10:50	11:05	Characterization of Ethanol-Nitrous Oxide Detonations at 25 kPa	Hussein Bilal, Karl P. Chatelain, Deanna A. Lacoste	52
11:05	11:20	On the microscopic structures of H2/O2 detonation wave front	Kazuki Maeda, Thibault Maurel-Oujia	101
11:20	11:35	Shock Wave Crossing Heterogeneous Transverse Jet	Kohei Ozawa, Jose I. Guerrero, Mirko Gamba, Nobuyuki Tsuboi, Kazuhiro Isii, A. Koichi Hayashi	104
11:35	11:55	Discussion		
11:55	13:25	**Lunch**		
Session Tu-3		**Numerical Modeling of Detonation**	**Chair: Hoi Dick Ng**	
13:25	13:40	Characteristics of Oblique Detonations and Shock-Induced Combustion Initiated by Blunted Wedges	Nathan Gonet, Ral Bielawski	49
13:40	13:55	Three-Dimensional Effects on Cell Structure and Induction Zone Dynamics in Hydrogen Detonations	Vigneshwaran Sankar, Karl P. Chatelain, Deanna A. Lacoste	53
13:55	14:10	Estimation of Efficient and Fast Solvers on Reactive Simulations of Detonation: Ignition Delay Times and One-dimensional Detonation	Nobuyuki Tsuboi	89
14:10	14:30	Discussion		
14:30	15:41	**Short Presentation and Poster Session**		
Session Tu-4		**Heat Transfer Problems**	**Chair: Jiun-Ming Li**	
15:41	15:56	Experimental Study of Regenerative and Water Cooling of a Disk-shaped Pressure Gain Combustor with Nitrous Oxide	Avion Lim, Peng Hwee Chua, Zhen Wei Teo, Xin Huang, Jiun-Ming Li, Chiang Juay Teo	35
15:56	16:11	Development of an RDE Materials and Heat Transfer Testbed	Georgios Koutsakis	71
16:11	16:21	**Short break**		
16:21	16:36	Component and material failure mechanisms in miniaturized rotating detonation engines	Diego K. Menendez, Michael W. Ross, Daniel R. Mumm, Lorenzo Valdevit, Xian Shi	77
16:36	16:51	Heat transfer modeling for kerosene and hydrogen-based RDE based on experiments	Krzysztof Benkiewicz, Maciej Osiewicz, Maciej Grzywka, Michał Kawalec	90
16:51	17:06	Heat Losses under Continuous and Multiple Detonations	Mike Kuznetsov, Reinhard Redlinger, Wolfgang Breitung	
17:06	17:26	Discussion		

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IWDP2026 : Technical Program

April 21, 2026

Wednesday May 6 (Day 3)				
Time		**Title**	**Authers**	**Code**
Session W-1		**Numerical Modeling of RDE**	**Chair: Edyta Dzieminska**	
9:00	9:15	Influence of Combustion Chamber Area on Detonation Wave Dynamics in RDREs	Megan Powers, Shivank Sharma, Venkat Raman	40
9:15	9:30	Simulation of rotating detonation in a hollow H2-O2 combustor under fuel-rich conditions	Ewen Bard, Dmitry Davidenko, Pierre Vidal, Wolfgang Armbruster	59
9:30	9:45	Numerical Optimization of a Partially Premixed Injector for a Rotating Detonation Rocket Combustor	Thomas Gaillard, Dmitry Davidenko, Pierre Hellard, Patrick Berterretche, Ratiba Zitoun, Pierre Vidal	60
9:45	10:00	A DeepFlame-Integrated Source-Term Neural Surrogate for Gaseous Detonation Simulations	Yifan Lyu, Georgios Bakalis, Hoi Dick Ng	72
10:00	10:30	Discussion		
10:30	10:45	**Short Break**		
Session W-2		**Fundamental Study of RDE**	**Chair: Myles Bohon**	
10:45	11:00	Advances in characterizing the operation and performance of H2-air RDCs at TUB (invited talk)	Myles Bohon, Hongyi Wei, Provence Barnouin, Jan Grobusch, Amaury Anquetil, Alastair Bruce	69
11:00	11:15	Analysis of Detonation Waves in a Separated Gaseous Hydrocarbon Section in a Hydrogen Rotationg Detonation Engine	Drew M. Sanders, Kevin Y. Cho, Brian C. Sell, John L. Hoke, Paul A. Gulotta, Matthew L. Fotia	47
11:15	11:30	Constraining Detonation-Wave Dynamics from Sparse Sampling Using Data Assimilation	Matthias Ihme, James J. Hansen, Davy Brouzet	55
11:30	11:45	Spectral analysis and modal decomposition of flow structures in a rotating detonation rocket engine	Mohammedniyasdeen Nejaamtheen, Jeong-Yeol Choi	74
11:45	12:15	Discussion		
12:15	13:45	Lunch		
Session W-3		**Combustion Chemistry in Detonation Propulsion**	**Chair: Nabiha Chaumeix**	
13:45	14:00	Investigation of Iso-propylnitrate as a Detonation Improver	Ayan Mousse-Rayaleh, Miles Burnett, Said Abid, Stéphanie de Persis, Andrea Comandini, Margaret Wooldridge, Nabiha Chaumeix	82
14:00	14:15	Experimental Studies on the Quantification of Deflagration in Rotating Detonation Combustors	Jose I. Guerrero, Mirko Gamba	75
14:15	14:30	Discussion		
14:30	15:38	**Short Presentation and Poster Session**		
Session W-4		**Air-breathing Operation of Detonation Propulsion & Demonstration and Launch Projects**	**Chair: Jeong-Yeol Choi**	
15:38	15:53	Discussion on the Airbreathing Operation of Detonation Propulsion (invited talk)	Jeong-Yeol Choi	80
15:53	16:08	Numerical Investigation of Micro-Pulse Detonation Engine Operation as Igniter in Scramjet Combustor	Min-Seon Jo, Si-Yoon Kang, Jeong-Yeol Choi	85
16:08	16:23	A Tailored Systems Engineering Framework for University-Led Two-Stage Sounding Rocket Projects	Si-Yoon Kang, Min-Seon Jo, Su-Wan Choi, Gyeong-Ui Mo, Geun-Jeong Lee, Chang-Su Ha, Woo-Seok Han, Jeong-Yeol Choi	87
16:23	16:38	Current Progress on the next Flight Demonstration of a Twin-Cylinder Rotating Detonation Engine System	Ken Matsuoka	109
16:38	16:53	Numerical Analysis of Unsteady Behavior in a Detonation-Assisted Fuel Injection System Using a Cylindrical RDC	Moeno Miyashita, Akiko Matsuo, Eiji Shima, Noboru Itouyama, Akira Kawasaki, Ken Matsuoka, Jiro Kasahara	112
16:53	17:23	Discussion		

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IWDP2026 : Technical Program

April 21, 2026

Thursday May 7 (Day 4)				
Time		**Title**	**Authers**	**Code**
Session Th-1		**Measurements and Diagnostics**	**Chair: Michal Kawalec**	
9:00	9:15	Assessment of fuel injection quality in a rotating detonation engine using liquid spray imaging	Maciej Grzywka, Michał Kawalec, Krzysztof Benkiewicz	91
9:15	9:30	CH* Chemiluminescence Imaging of Continuous Detonation Waves in a Disk Combustor	Huang Xin, Teo Zhen Wei, Li Jiun-Ming, Teo Chiang Juay, Khoo Boo Cheong	38
9:30	9:45	Dilution Dependence of Multiple-Ion Probe Response to Near-Wall Flame Propagation	Tomoaki Yatsufusa, Takehiro Okahira, Kohei Nagashige, Soya Inoue	41
9:45	10:05	Discussion		
10:05	10:20	**Short Break**		
Session Th-2		**Operability of RDE**	**Chair: Eric Bach**	
10:20	10:35	Experiences in Steady-State Operation of an Air-Cooled RDC	Eric Bach, Andrea Ruan, Sergio Grasa, Rohan Gejji, Carson Slabaugh, Guillermo Paniagua	84
10:35	10:50	ONERA/MBDA joint investigation of a H2–O2 Rotating Detonation Combustor	Léopold Dru, Stéphane Boulal, Nicolas Fdida, Thomas Vileo, Lucien Vingert, Bruno Le Naour, Pierre Bernigaud	42
10:50	11:05	Performance of a Regeneratively-Cooled Disk Pressure Gain Combustor	Peng Hwee Chua, Avion Lim, Zhen Wei Teo, Xin Huang, Jiun-Ming Li, Chiang Juay Teo	36
11:05	11:20	Stabilization of Core Combustion by the Detonation Wave in a Flow-Through Rotating Detonation Combustor	Ephraim Gutmark, Anthony Centofanti	56
11:20	11:35	Experimental Study of Nozzle-Geometry Effects on Thrust Performance of a Regenerative Cooling Rotating Detonation Engine	Min-Sik Yun, Sangyoon Lee, Hyoung Jin Lee	64
11:35	12:05	Discussion		
12:05	13:35	**Lunch**		
Session Th-3		**Performance of RDE**	**Chair: Kazuhiro Ishii**	
13:35	13:50	Operating characteristics of a rotating detonation engine using liquid ethanol and gaseous oxygen (invited talk)	Kazuhiro Ishii, Asahi Ogura, Yuzuki Matoba, Gakuto Ono, Hideyuki Tanno	68
13:50	14:05	A Simplified Model of RDE Wave Height Instability	John A Grunenwald, William Stigliano, James Braun	39
14:05	14:20	Performance Evaluation of Methane-Vitiated Air RDE at Elevated Inlet Temperatures	Tim Roos, Wolter Wieling, Sarissa Aurori, Frank Hofs	44
14:20	14:35	Experimental Investigation on Laser Ignition for a Small-Scale Rotating Detonation Engine	Tomoyuki Sato, Michael Börner, Wolfgang Armbruster, Alexander Bee, Justin Hardi	48
14:35	15:05	Discussion		
15:05	16:13	**Short Presentation and Poster Session**		
Session Th-4		**High-Fidelity Simulations**	**Chair: A. Koichi Hayashi**	
16:13	16:28	Numerical Simulation of Three-Dimensional Rotating Detonation Combustors Using a Partitioned Model for Heat Release	Yusuf Keskinoz, Venkat Raman	50
16:28	16:43	Timescales of Shock-induced Breakup and Combustion of Liquid Dodecane Droplets	Michael Ullman, Venkat Raman	73
16:43	16:58	A Novel CFD Solver for High-Speed Reactive Flows	Giuseppe M. Bruno, Bayindir H. Saracoglu	94
16:58	17:18	Discussion		
17:45		Door open		
18:00	20:00	**Banquet at Faculty Lounge**		

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IWDP2026 : 3 Minutes Presentation and Poster Session

April 21, 2026

Tuesday May 5 (Day 2)				
May 5 (Tue.)		**Title**	**Presenter**	**Cord**
14:30	14:33	Aerodynamic Force Measurement of a Flat Vane in Supersonic Flows Generated by Detonation Combustion Using a 6-Axis Force Sensor	Kenzo Maeda, Tsukasa Hori, Masatoshi Kakuda, Keita Takagi, Takato Moriya, Ayuto Manabe, Yuichiro Ide, Noboru Itouyama, Ken Matsuoka, Masaaki Yasui, Jiro Kasahara, Kazuyuki Higashino, Ryojiro Minato	107
14:33	14:36	Regenerative Cooling Based Gasification of Liquid Reactants for Rotating Detonation Engine Operation	Rafael J. Kalmanson, Charles B. Kiyanda	79
14:36	14:39	Performance Optimization of a One-Dimensional Hydrogen Detonation CFD Solver using OpenMP and OpenACC	Benjamin Ygorra, Shoma Nakano, Hibiki Okuda, Tsuboi Nobuyuki	88
14:39	14:42	Contribution of Pressure Gain through Heat Release Analysis in a Rotating Detonation Engine through Numerical Simulations	Donggi Lee, Tae-Seong Roh, Hyoung Jin Lee, Sangyoon Lee	62
14:42	14:45	Development of an Engineering Cell Size Model for Methane Hydrogen-Vitiated Air Detonation	Tim Roos	45
14:45	14:48	Static and total temperature assessment and methodology applied to an RDC exhaust	Amaury Anquetil, Hongyi Wei, Myles Bohon	70
14:48	14:51	Towards integration of sub-sonic turbine with RDE: mixer design and transition duct	Eiki Mori, Said Taileb, Marc Bellenoue, Omar Dounia	105
14:51	15:41	Discussion		

IWDP2026 : Work-in-Progress

April 21, 2026

Tuesday May 5 (Day 2)				
WIP-5	1	KARI's Initiative for RDRE Core Technology Development	Byoungjik Lim, Dongwoo Choi, Giseop Kim	111
WIP-5	2	Numerical and Experimental Study on Small-scale Air-breathing Rotating Detonation Combustor	Seung-Min Jeong, Subeom Heo, Sanghoon Lee, Boh Yeon Kim, Jae Seung Kim, Dong Gyu Lee, Inyoung Yang	81
WIP-5	3	Visualization of Detonation Wave Propagation in Two-Phase Ethanol-Oxygen Jets Using a Colliding-Jet Injector	Soma Nishimura, Manami Fukuda, Futa Takahashi, Masato Tanaka, Shinichi Maeda, Yoko Seki, Tetsuro Obara, Hideyuki Tanno, Shuto Yatsuyanagi	113
WIP-5	4	Research on a Rotating Detonation Engine Using Liquid Propane and Liquid Nitrous Oxide	Takayuki Matsushita, Tomoki Sato, Sota Suzuki, Jiro Kasahara, Ken Matsuoka, Noboru Itouyama, Masaaki Yasui, Yuichiro Ide, Akira Kawasaki, Daisuke Nakata, Hikaru Eguchi, Masaharu Uchiumi, Akiko Matsuo, Ikkoh Funaki	115
WIP-5	5	Prototype of RDE with Improved Ignition System and Hollow Chamber Using Ammonia Fuel	Takanobu Okada, Fushi Kato, Mei Aburada, Emir Yilmaz, Edyta Dzieminska, Mitsuhisa Ichiyanagi, Takashi Suzuki	116

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IWDP2026 : 3 Minutes Presentation and Poster Session

April 21, 2026

Wednesday May 6 (Day 3)				
May 6 (Wed.)		**Title**	**Presenter**	**Cord**
14:30	14:33	A Eulerian-Eulerian Model Study on the Effects of Droplet Evaporation for Two-phase Detonation	Hyunseo Park, Nobuyuki Tsuboi, Kohei Ozawa, A. Koichi Hayashi	95
14:33	14:36	Experimental Investigation of Detonation Propagation Characteristics in a Reflective Shuttling Detonation Engine Operated under Nitrogen-Diluted Ethylene–Oxygen Conditions	Ryuki Sato, Haruna Inoue, Akira Kawasaki, Ken Matsuoka, Noboru Itouyama, Jiro Kasahara, Akiko Matsuo	93
14:36	14:39	Experimental Investigation of Detonation Propagation in a Disk-RDRE using Liquid Propellants	Woo-Seok Han, Gyeong-Ui Mo, Mohammedniyasdeen Nejjamtheen, Min-Seon Jo, Jeng-Yeol Choi	83
14:39	14:42	Detonation Propagation in Low-Temperature Fields of Premixed GH2/GO2 Mixtures	HyeongSeok Kim, Min-Sik Yun, SangYoon Lee, Hyoung Jin Lee	63
14:42	14:45	Reflected Oblique Shock Coupling with Injector Refill Dynamics and Effect on RDE Stability	Alastair Bruce, C. Oliver Paschereit, Myles Bohon	54
14:45	14:48	Numerical Investigation of a Reflective Shuttling Detonation Combustor as a Parallel Fuel Injector for Supersonic Airflow	Hibiki Sato, Akiko Matsuo, Eiji Shima	86
14:48	15:38	Discussion		

IWDP2026 : Work-in-Progress

April 21, 2026

Wednesday May 6 (Day 3)				
WIP-6	6	Experimental Study of Spray Characteristics of Impinging Liquid Films under Gas Jets	Ibuki Kitamura, Noboru Itouyama, Ken Matsuoka, Jiro Kasahara, Akiko Matsuo, Akira Kawasaki	124
WIP-6	7	Identifying Conditions for Mach Disk Stabilized Detonations	Aidan Mulroney Gelinas, Ralf Deiterding, Hoi Dick Ng	121
WIP-6	8	The network of triple-point collisions in cellular detonations	Diego K. Menendez, Xian Shi	122
WIP-6	9	Disk RDE Operability for low mass flow rates	Hiroaki Shiga, Edyta Dzieminska, Takashi Suzuki, Mitsuhisa Ichiyanagi	123

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IWDP2026 : 3 Minutes Presentation and Poster Session

April 21, 2026

Thursday May 7 (Day 4)				
May 7 (Thu.)		**Title**	**Presenter**	**Cord**
15:05	15:08	Numerical Investigation of a Pulse Detonation Thruster with a Hartmann Resonator based Mixing Chamber	Bayindir H. Saracoglu, Ouahb Tafali	97
15:08	15:11	Effect of Shock Wave Passes and Axial Distance on the Decay of Circumferential Components in Rotating Detonation Engines	Nobuaki Aoki, Hideki Moriai	34
15:11	15:14	Design of 50 mm Rotating Detonation Rocket Engine	Jeongho Park, Cheolwoong Kang, Minsang Kim, Kyubok Ahn	78
15:14	15:17	Performance Evaluation of OpenMP and OpenACC in a One Dimensional Detonation Analysis Code for Hydrogen Fuel	Shoma Nakano, Hibiki Okuda, Nobuyuki Tsuboi, A. Koichi Hayashi	65
15:17	15:20	Numerical Study of Rotating Detonation Propagation in a Two-Phase Jet A-Air Mixture	Emrys Bouisson, Dmitry Davidenko, Thomas Gaillard, Joël Dupays, Wei Long Siauw	57
15:20	15:23	Numerical Study of the TUB Pintle Injector for an H2/Air RDC	Mathieu Constant, Thomas Gaillard, Dmitry Davidenko, Marc Bellenoue	61
15:23	16:13	Discussion		

IWDP2026 : Work-in-Progress

April 21, 2026

Thursday May 7 (Day 4)				
WIP-7	10	Demonstration and Characterization of Liquid Dimethyl Ether Direct-Injection Pulse Detonation Engine	Haruki Yamamoto, Kohei Ozawa, Nobuyuki Tsuboi	125
WIP-7	11	Heat-Flux Measurement Methods in Rotating Detonation Combustors: Which one to use?	Joshua Stoll, Florian Ditsche, Jannis Petersen, Martin Propst, Martin Tajmar, Christian Bach	126
WIP-7	12	One-dimensional Numerical Analysis on Dimethyl Ether/O2 Premixture Detonation Using Detailed Chemical Reaction Model	Hayato Ishida, Nobuyuki Tsuboi, Kohei Ozawa, Koichi A. Hayashi	127
WIP-7	13	Design and static fire test of a Disk-type Rotating Detonation Engine and systematization for model rocket integration	Mizuki Toyoda, Naoki Okamura, Hirohito Suzuki, Toshiharu Mizukaki	128