



## 28<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems

Sunday 19 - Friday 24 June 2022

Napoli, Italy

### TECHNICAL PROGRAM – VERSION OF JUNE 23, 2022

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*Legend:*

**(paper#)** normal presentation

**(paper#)** presentation delivered by remote or recorded.

Monday, June 20 <sup>th</sup> , 2022 (morning sessions)				
8:30 9:00	Opening ceremony and Registrations			
9:00 10:00	<b>Plenary Lecture (Aula Magna): Prof. Jiro Kasahara (Nagoya University, Japan)</b> <b>Title: Fundamental Research of Detonation Engine and Its Space Flight Experiment Using Sounding Rocket</b> <i>Chairs: A. Matsuo and M. Gamba</i>			
10:00 10:10	Break (Transition to Morning Sessions)			
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>RDE I</b> <i>Chair: T. Endo</i>	<b>Detonation Modelling I</b> <i>Chair: L. Bauwens</i>	<b>Gas and Dust Explosion I</b> <i>Chair: M. Kuznetsov</i>	<b>Chemical Kinetics I</b> <i>Chair: M. Fikri</i>
10:10 10:35	<b>Preliminary Experimental Study of Propulsive Performance of Hollow Rocket Rotating Detonation Engines with Designed Laval Nozzle</b> <b>(137)</b> <i>Y. Zhang, J.Z. Ma, J.P. Wang, S. Zhang</i>	<b>On the Predicability of Weakly Confined Gaseous Detonations Using the Straight Streamline Approximation</b> <b>(191)</b> <i>S.A. Lalchandani, M. Radulescu, Z. Hong</i>	<b>On the Reactivity of Ethylene/Nitrogen/ Oxygen</b> <b>(38)</b> <i>G. Pio, S. Renda, V. Palma, E. Salzano</i>	<b>Ignition Delay Time and Laminar Flame Speed Measurements of a Li-ion Battery Electrolyte: Ethyl-Methyl-Carbonate</b> <b>(46)</b> <i>O. Mathieu, Y. Almarzoog, E. Petersen</i>
10:35 11:0	<b>Experimental Investigation on the Coal Powder Rotating Detonation Engine</b> <b>(247)</b> <i>X. Ni, H. Xu, C. Weng, X. Su, B. Xiao, F. Zhang, Y. Luo</i>	<b>Numerical Investigation of One-dimensional Pulsating Detonations Using Fickett's Detonation Analogue with Chain-Branching Kinetics</b> <b>(234)</b> <i>A. Sow, M.I. Radulescu</i>	<b>Characterizing the Reactivity of Large-Scale Dust Explosions</b> <b>(114)</b> <i>C. R.L. Bauwens, L.R. Boeck, S. Dorofeev</i>	<b>Global Quasi-Linearization (GQL) for Model Reduction of Reaction Diffusion Systems</b> <b>(68)</b> <i>V. Bykov, C. Yu, U. Maas, V. Gol'dshtein</i>
11:00 11:25	<b>Numerical Analysis of the Influence of Mixing on Detonation Wave Propagation inside a Rotating Detonation Engine by Using Linear Detonation Channel</b> <b>(78)</b> <i>F. Wang, T. Mizukaki, S. Matsuyama</i>	<b>Characteristic Analysis for 2D Steady Supersonic Reacting Flow: Effect of Confinement on Detonation Flows</b> <b>(127)</b> <i>M. Short, C. Chiquete</i>	<b>Large-Scale Confined Gas and Dust Explosions with Elevated Initial Turbulence</b> <b>(108)</b> <i>L.R. Boeck, C.R.L. Bauwens, S. Dorofeev</i>	<b>Ignition delay time measurements of methane/ethane/propane mixtures with addition of ozone</b> <b>(178)</b> <i>S. Drost, R. Schießl, U. Maas</i>
11:25 11:50	Break and Work-In-Progress Posters Session I (Hall of 1 <sup>th</sup> floor)			
Topics	<b>Gas and Dust Explosion II</b> <i>Chair: C.R. Bauwens</i>	<b>Condensed Phase Detonation I</b> <i>Chair: M. Short</i>	<b>RDE II</b> <i>Chair: K. Ahmed</i>	<b>Chemical Kinetics II</b> <i>Chair: P. Glarborg</i>
11:50 12:15	<b>Propagation of Methane Detonation in Coal Dust Suspensions with Different Concentrations</b> <b>(62)</b> <i>J. Shi, Y. Xu, W. Ren, H. Zhang</i>	<b>Detonation Performance Experiments and Modeling for the High Explosive PETN</b> <b>(71)</b> <i>E.K. Anderson, C. Chiquete, R. Chicas, S.I. Jackson</i>	<b>Simulations of Ethylene-Oxygen Rotating Detonation Waves under Different Local Equivalence Ratio</b> <b>(85)</b> <i>H. Peng, R. Deiterding</i>	<b>Effects of Di(2,2,2-trifluoroethyl) Carbonate on the Ignition Delay Time and Laminar Flame Speed of H<sub>2</sub> and CH<sub>4</sub></b> <b>(258)</b> <i>M. Turner, D. Mohr, P. Dievart, L. Catoire, E. Petersen, O. Mathieu</i>
12:15 12:40	<b>Gravity Effect on Steady, 1-D Propagation through Dust Clouds</b> <b>(83)</b> <i>K. Kuwana, S. Yazaki, W. Kim, T. Mogi, R. Dobashi</i>	<b>Detonation Performance Model Calibration and Validation of the HMX-Based High Explosive PBX 9501</b> <b>(132)</b> <i>C. Chiquete, S.I. Jackson, E.K. Anderson, M. Short, S. Voelkel, Von H. Whitley</i>	<b>Three-Dimensional Numerical Investigation on the Effect of Injector Configuration in Rotating Detonation Engine</b> <b>(210)</b> <i>T. Sada, A. Matsuo, E. Shima, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara</i>	<b>Sensitivity of Reaction-Diffusion Manifolds (REDIM) for Hydrogen Counter-diffusion Flames</b> <b>(161)</b> <i>U. Maas, V. Bykov</i>
12:40 13:05	<b>Expansion Waves Behaviour during Liquified CO<sub>2</sub> Depressurization in a Divergent Cross-Section Vessel</b> <b>(63)</b> <i>O.K. M.Ibrahim, P.M. Hansen, D. Bjerketvedt, K. Vågsæther</i>	<b>Towards Finite Rate Chemical Kinetics Modeling of Detonation Afterburn Using the BKW Equation of State</b> <b>(142)</b> <i>M.P. Clay, B. Taylor, R. Houim</i>	<b>Flow Acceleration in an RDRE with Gradual Chamber Constriction</b> <b>(22)</b> <i>M.C. Ross, J. Burr, A. Batista, C. Lietz</i>	<b>Influence of Thermochemistry on Prompt NO formation in Flames</b> <b>(10)</b> <i>K.P. Shrestha, L. Seidel, B.R. Giri, T. Zeuch, F. Mauss</i>
13:05 14:35	Lunch (Biblioteca Gasparini, 2 <sup>nd</sup> Floor)			

Monday, June 20 <sup>th</sup> , 2022 (afternoon sessions)				
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>IC Engines</b> <i>Chair: U. Maas</i>	<b>Detonation Propagation</b> <i>Chair: H.D. Ng</i>	<b>RDE III</b> <i>Chair: E. Gutmark</i>	<b>Chemical Kinetics III</b> <i>Chair: O. Mathieu</i>
14:35 15:00	<b>OD Laminar Flame Speed Model for Methane Lean Mixture in Dual Fuel Combustion (109)</b> <i>R. De Robbio, E. Mancaruso, B.M. Vaglieco, S. Artham, J. Martín</i>	<b>Elliptical Experimental Detonation (58)</b> <i>R. Babin, A. Chinnayya, V. Rodriguez</i>	<b>Study of Rotating Detonation Combustor Dynamics During Changes in Operating Mode (237)</b> <i>J. Shepard, A. Feleo, M. Gamba</i>	<b>The Impact of H2 and CO on the NH3 / NO / O2 Chemistry - a Step towards a Predictive Tool for NH3 Oxidation (103)</b> <i>P. Glarborg, M.U. Alzueta</i>
15:00 15:25	<b>Statistics of Flame Topology in Turbulent Spray Flame Water Droplet Interaction (26)</b> <i>R. Concetti, J. Hasslberger, N. Chakraborty, M. Klein</i>	<b>Study of Imploding Detonations with High-speed Videography and Digital Open-shutter Photography (91)</b> <i>R.S. Rodriguez A. Higgins, J. Loiseau</i>	<b>The Effect of Fuel Partial Premixing on Rotating Detonation Waves (111)</b> <i>R.F. Burke, T. Rezzag, A.R. Kotler, K. Ahmed</i>	<b>Thermal Decomposition-induced Multi-stage Reaction of Diethyl Carbonate Examined by a Micro Flow Reactor with a Controlled Temperature Profile (167)</b> <i>K. Kanayama, S. Takahashi, S. Morikura, H. Nakamura, T. Tezuka, K. Maruta</i>
15:25 15:50	<b>Effect of Jet Configuration on Knock Characteristics Using a Rapid Compression Machine (80)</b> <i>W. Liu, Y. Qi, R. Zhang, Q. Zhang, Z. Wang</i>	<b>Towards Laser-Induced Fluorescence of Nitric Oxide in Detonation (164)</b> <i>K.P. Chatelain, S.B. Rojas Chavez, J. Vargas, D.A. Lacoste</i>		<b>Modeling Soot Formation in LES of Turbulent Flames Using Virtual Chemistry (89)</b> <i>H. Maldonado Colman, D. Veynante, N. Darabiha, B. Fiorina</i>
15:50 16:15	<b>The Effect of the Ignition Energy and Mixture Energy Density on the Detonation Onset in Internal Combustion Engines (177)</b> <i>H. Xu, C. Weng, C. Yao</i>	<b>Multiple-view Imaging of a Small-diameter Detonation Tube at 5 MHz (40)</b> <i>L. Thomas, F. Schauer, D. Cyrol, B. Sell, C. Stevens</i>	<b>Initiation Dynamics of Rotating Detonation Engines using C2H4-O2 Mixtures (227)</b> <i>S.F. Connolly-Boutin, M. Ghali, R. Gilot, J. Loiseau, A. Higgins, C.B. Kiyanda</i>	<b>Large Eddy Simulation of a Multi-Regime Burner Using Virtual Chemistry (90)</b> <i>T.P. Luu, B. Fiorina, N. Darabiha</i>
16:15 16:40	<b>Break and Work-In-Progress Posters Session I (Hall of 1<sup>th</sup> floor)</b>			
Topics	<b>Chemical Kinetics IV</b> <i>Chair: B. Fiorina</i>	<b>Detonation Structure I</b> <i>Chair: R. Zitoun</i>	<b>Flame Acceleration &amp; DDT I</b> <i>Chair: S. Dorofeev</i>	<b>Explosion Safety I</b> <i>Chair: E. Salzano</i>
16:40 17:05	<b>Community Analysis of Bifurcation Maps of Diluted Hydrogen Combustion in WSFRs (129)</b> <i>J. He, Y. Li, L. Ji, L. Acampora, F.S. Marra</i>	<b>Cell Structure and Global Heat Release in 2D and 3D JP10-Air Detonations in Narrow Channels (186)</b> <i>P.A. Meagher, X. Shi, X. Zhao, S.S. Dammati, A. Poludnenko, H. Wang</i>	<b>DDT Run-up Distance Measured by Visualization of an Obstructed Tube (256)</b> <i>S. Shervin Hashemi Mehr, G. Ciccarelli</i>	<b>The Bologna LPG BLEVE (197)</b> <i>G. Cocchi</i>
17:05 17:30		<b>Towards the Converged Von Neuman Peak Pressure using Fine Scale Simulation of Detonation Cell Structure (200)</b> <i>J. Ryu, M. Niyasdeen, J.Y. Choi</i>	<b>Visualization of Deflagration-to-detonation Transition in a Channel with Rough Wall (163)</b> <i>S. Maeda, M. Irokawa, D. Taneichi, T. Obara</i>	<b>Numerical Simulation of the effects of a muffler on shock sound mitigation (50)</b> <i>A. Sethu Venkataraman, E. Oran</i>
17:30 17:55	<b>Oscillatory Combustion Kinetic Analysis and Reduction through Functional Weight Coefficient (126)</b> <i>S. Liang, L. Ji, D. Zhao</i>	<b>Predictability of H2/O2/Ar/He Detonations in Thin Channels: New Experiments and Improvements in the Quasi-two-dimensional Mode (175)</b> <i>F. Zangene, A. Sow, M. Radulescu</i>	<b>Plasma-assisted Deflagration to Detonation Transition of Dimethyl Ether in a Microchannel (235)</b> <i>M. Vorenkamp, T. Chen, S. Steinmetz, C. Kliewer, A. Starikovskiy, Y. Ju</i>	<b>Experimental study on turbulent flame speed of H2-CO/air mixtures relevant to late phase accident scenario (173)</b> <i>A. Desclaux, M. Idir, A. Comandini, A. Bleyer, A. Bentaib, N. Chaumeix</i>
17:55	<b>Adjourn</b>			

## Work in Progress Posters Session I

- (274) Preliminary investigations of the detonation-bow shock interaction: a pictorial essay**  
*A.S. Venkataraman, E.S. Oran*
- (287) The comparison of Favre average procedure for the gaseous detonation from Eulerian and Lagrangian point of view**  
*H. Watanabe, A. Matsuo, A. Chinnayya, N. Itouyama, A. Kawasaki, K. Matsuoka, J. Kasahara*
- (272) Recent Research on Rotating Detonation Engines supplied by liquid propellants at the Łukasiewicz Institute of Aviation**  
*M. Kawalec, P. Wolański, W. Perkowski, A. Bilar*
- (284) Water-Cooled Rotating Detonation Engine**  
*T. Fukuda, K. Sato, T. Nagao, M. Itoh, E. Dzieminska*
- (279) Cellular structure of helium detonation as a trigger of sub-Chandrasekhar mass Type Ia supernovae**  
*K. Iwata, K. Maeda*
- (282) Heat Radiation Losses from Propagating Spherical Flames of Mixtures with Methane, Hydrogen, Carbon Monoxide and Air**  
*A. Roque, A. Hamadi, M. Idir, A. Comandini, N. Chaumeix*
- (293) Onset of Cellular Instability in Spherically Expanding Flames**  
*M. Turner, E. Petersen*

Tuesday, June 21 <sup>st</sup> , 2022 (morning sessions)				
9:00 10:00	<b>Plenary Lecture (Aula Magna): Prof. Gaby Ciccarelli (Queen's University, Canada)</b> <b>Title: Flame Acceleration and Deflagration-to-Detonation Transition in a Confined Geometry</b> <i>Chairs: H.D. Ng and A. Matsuo</i>			
10:00 10:10	Break (Transition to Morning Sessions)			
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>Detonation Modelling II</b> <i>Chair: G. Vignat</i>	<b>Detonation Structure II</b> <i>Chair: N. Tsuboi</i>	<b>Stability I</b> <i>Chair: M. Liberman</i>	<b>Laminar Flame I</b> <i>Chair: Y. Ju</i>
10:10 10:35	<b>Uncertainty Quantification for the Real Gas Model of Steady Planar Detonation</b> (18) <i>Z. Weng, R. Mevel</i>	<b>Experimental Analysis of Cellular Detonations: a Discussion on Regularity and Three-dimensional Patterns</b> (57) <i>V. Monnier, V. Rodriguez, P. Vidal, R. Zitoun</i>	<b>Fractal-based RANS Modeling of Darrieus—Landau and Thermal-diffusive Instability Effects on Lean Hydrogen Flames</b> (33) <i>D. Zivkovic, T. Sattelmayer</i>	<b>A Study on the Effect of Ethanol Addition on Laminar Flame Speed of a Four-Component Gasoline Surrogate at Elevated Pressure and Temperature</b> (56) <i>Y. Almarzooq, E. Petersen, I. Schoegl</i>
10:35 11:0	<b>Detonation Propagation in the Inhomogeneous Mixtures with Periodic Reactant Concentration Gradient</b> (12) <i>Y. Wang, Z. Chen</i>	<b>Comparative Analysis of the ZND Detonation Structure in Hydrocarbon Fuels</b> (245) <i>C. Colby, A. Ghosh, S.S. Dammati, A. Poludnenko</i>	<b>Investigation of the Scale Similarity Principle for Subgrid Modelling of the Reactive Richtmyer-Meshkov Instability</b> (23) <i>M. Bambauer, J. Hasslberger, M. Klein</i>	<b>Experimental and Numerical Study on a Gasoline Surrogate Mixture</b> (238) <i>O. Mghanen, N. Chaumeix, M. Matrat, S. Chevillard, N. Obrecht</i>
11:00 11:25	<b>Unified Characteristic Relationships of Hydrogen-Oxygen-Argon Detonation Dynamics in Narrow Channels</b> (145) <i>Q. Xiao, C. Weng</i>	<b>Two-Dimensional Detonations in Ethylene-Air Mixtures with Multi-Step Chemistry</b> (230) <i>S.S. Dammati, A. Poludnenko</i>	<b>Numerical Investigation of Fuel Feed Line Instabilities and its Effects in the Partially Premixed Swirling Flame</b> (159) <i>J. Nam, J.J. Yoh</i>	<b>Chemiluminescence of Spherically Expanding Methane-Air Flames Doped with DMMP</b> (140) <i>M. Turner, P. Parajuli, W. Kulatilaka, E. Petersen</i>
11:25 11:50	Break and Work-In-Progress Posters Session II (Hall of 1 <sup>th</sup> floor)			
Topics	<b>Laminar Flame II</b> <i>Chair: G. Continillo</i>	<b>Detonation Structure III</b> <i>Chair: R. Deiterding</i>	<b>Detonation Diffraction</b> <i>Chair: K. Matsuoka</i>	<b>Stability II</b> <i>Chair: T. Jaravel</i>
11:50 12:15	<b>Combustion Characteristics of Butane in a Meso-scale Burner with Ordered Porous Media</b> (255) <i>X. Chen, J. Li</i>	<b>Detonation Structural Response to Multi-dimensional Confinement</b> (217) <i>J. Crane, J.T. Lipkowitz, X. Shi, I. Wlokas, A. Kempf, H. Wang</i>	<b>Numerical Study on Re-Initiation of Detonation Propagating through Double Slits in a Planar Channel</b> (101) <i>D. Jun, B.J. Lee</i>	<b>Oxygen Enrichment Effect on the Stability of Turbulent Diffusion Biogas Flames</b> (213) <i>S. Fabbro, M. Tkach, M. Birouk</i>
12:15 12:40	<b>Analysis of Chemical-Induced Irreversibility in Premixed Counterflow CH<sub>4</sub>/CO/Air Flame</b> (168) <i>C.R. Yu, C.Y. Wu</i>	<b>Dynamics and Properties of 2D vs. 3D Ethylene-Air Detonations</b> (151) <i>S.S. Dammati, A. Poludnenko, R. Xu, X. Shi, H. Wang</i>	<b>Simplified Numerical Simulation of Gaseous Quasi-Detonation Diffraction from a Rough Walled Channel</b> (192) <i>C. Yan, X. Sun, X.C. Mi, H.D. Ng</i>	<b>Multiple Steady State Solutions for a Flame Stabilized behind a Highly Conductive Bluff Body</b> (11) <i>V.N. Kurdyumov, C. Jimenez</i>
12:40 13:05	<b>Validation of the Reaction-Diffusion Manifolds (REDIMs) Reduced Chemistry for the Non-premixed CH<sub>4</sub> Counter-flow Diffusion Flames under MILD Condition</b> (208) <i>Y. Sun</i>	<b>Numerical Analysis on Ammonia / Hydrogen / Air Detonation Using Detailed Chemical Reaction model</b> (94) <i>G. Inoue, N. Tsuboi, K. Ozawa, A.K. Hayashi</i>	<b>Data-driven Modeling of Reflection Point Distance Relevant to Diffracting Detonation Wave by using Machine Learning</b> (246) <i>A. Kawasaki, H. Hasegawa, H. Sun, H. Watanabe, N. Itouyama, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki</i>	
13:05 14:35	Lunch (Biblioteca Gasparini, 2 <sup>nd</sup> Floor)			

Tuesday, June 21 <sup>st</sup> , 2022 (afternoon sessions)				
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	RDE IV Chair: <i>M. Kawalec</i>	Detonation Structure IV Chair: <i>M. Radulescu</i>	Multiphase I Chair: <i>J. Yoh</i>	Laminar Flame III Chair: <i>H. Wang</i>
14:35 15:00	<b>Active Direction Control in Rotating Detonation Combustor (104)</b> <i>Z. Sheng, M. Cheng, D. Shen, K. Wu, J.P. Wang</i>	<b>An Investigation of the Detonation Jetting Phenomenon (120)</b> <i>R. Hytovick, R.F. Burke, T. Rezzag, K. Ahmed</i>	<b>Shock Interaction at Mach 4 of a Water and Fuel Droplet (244)</b> <i>F. Virost, J.-L. Rullier, D. Hébert</i>	<b>Experimental Study of Early-Stage Dynamics of the Ascending and Descending Laminar Hydrogen-Air Flames in Vertical Closed Rectangular Tube (183)</b> <i>N.B. Anikin, I.A. Kirillov</i>
15:00 15:25	<b>Experimental Study on the Aluminum Powder Rotating Detonation Engine (190)</b> <i>H. Xu, C. Weng, Q. Zheng</i>	<b>Forward Jetting Phenomenon in Detonations (232)</b> <i>P.A. Meagher, X. Shi, J. Crane, X. Zhao, A. Poludnenko, H. Wang</i>	<b>High-fidelity Simulations of Liquid-gas Colliding Jets Impacted by a Detonation Wave (28)</b> <i>R.J. Bielawski, S. Prakash, V. Raman</i>	<b>Laminar Burning Velocity and Adiabatic Flame Temperature of Biogas/Air Mixture at various CO2 Concentrations (152)</b> <i>A. Ghabi, T. Boushaki, P. Escot Boucanegra, E. Robert, B. Sarh</i>
15:25 15:50	<b>Numerical Investigation of the Effect of Ozone Addition on Detonation in the Two-dimensional RDE Chamber (207)</b> <i>R. Tanaka, A. Matsuo, E. Shima, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara</i>	<b>Experimental Research On The Biogas – Oxygen Mixture Detonation Cell Size (205)</b> <i>S. Siatkowski, K. Wacko, J. Kindracki</i>	<b>A Computational Model for Single Iron Particle Combustion in Liquid-Phase Droplets (96)</b> <i>A. Fujinawa, X.C. Mi, J. Jean-Philippe, J. Bergthorson</i>	<b>Flame-Acoustics Interaction of Flames Propagating in a Narrow Duct: Effect of Heat Losses and Lewis Number (144)</b> <i>C. Jimenez, V.N. Kurdyumov</i>
15:50 16:15	<b>Effects of Mixing Level and Temperature of Injection in Rotating Detonative Combustion (224)</b> <i>C. Wang, K. Yao, H. Teng, Y. Wang, C. Tian</i>	<b>On Cellular Multiplicity of Detonations in Confined Channels (222)</b> <i>X. Shi, P.A. Meagher, J. Crane, S.S. Dammati, X. Zhao, A. Poludnenko, H. Wang</i>	<b>On the Critical Conditions for Thermal Runaway of Fine Iron Particles (97)</b> <i>X.C. Mi, A. Fujinawa, J. Bergthorson</i>	<b>Evolution of Acoustic Waves in High-Pressure Compressible Counterflow Diffusion Flames (48)</b> <i>G. Arumapperuma, M.X. Yao, J.P. Hickey, W. Han</i>
16:15 16:40	<b>Break and Work-In-Progress Posters Session II (Hall of 1<sup>th</sup> floor)</b>			
Topics	Multiphase II Chair: <i>A. Matsuo</i>	Detonation Interface Interaction Chair: <i>V. Rodriguez</i>	RDE V Chair: <i>C. Stevens</i>	Laminar Flame IV Chair: <i>N. Darabiha</i>
16:40 17:05	<b>Mixture Distribution of Solid-Gas-Two-Phase Flow for Gaseous Detonation with Aluminium Particles (214)</b> <i>R. Shimizu, T. Mizukaki</i>	<b>Detonation Propagation in a Layer Laterally Confined by Combustion Products (226)</b> <i>K. Cheevers, M. Raut, S.A. Lalchandani, Z. Hong, M. Radulescu</i>	<b>An Explanatory Model for the Multi-Wave Dynamics in Rotating Detonation Engines (70)</b> <i>C.R. Whitman, X.C. Mi, A. Higgins, C.B. Kiyanda</i>	<b>Early Stages of Flame Dynamics in Tubes and Mechanism of Tulip Flame Formation (9)</b> <i>M.A. Liberman, C. Qian, C. Wang</i>
17:05 17:30	<b>Morphology-independent Measurement of Iron Particle Burn Time (270)</b> <i>D. Ning, Y. Shoshin, J.A. van Oijen, G. Finotello, L.P.H. de Goey</i>	<b>A Methodology to Develop Simplified Kinetic Schemes for Detonation Simulations (86)</b> <i>F. Veiga-Lopez, A. Chinnayya, J. Melguizo-Gavilanes</i>	<b>Acceleration of Burned gas to Supersonic in a Throatless Rotating Detonation Engine (160)</b> <i>K. Nakata, K. Ota, S. Ito, K. Ishihara, K. Goto, N. Itouyama, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki, K. Higashino, J. Braun, T. Meyer, G. Paniagua</i>	<b>CFD Modeling of Pressurized Laminar Coflow (Non-premixed) Diffusion Flames with Water Addition (162)</b> <i>H. Girodon, D. Dunn-Rankin, Y.C. Chien</i>
17:30 17:55	<b>Pyroelectric Combustion Rate Characterization of Electrically Controlled Solid Propellants (193)</b> <i>G. Kanagaraj, J.J. Yoh</i>		<b>Propagation of Gaseous Detonations in High Aspect Ratio Planar Curved Channels (13)</b> <i>M.L. Fotia, J. Hoke, R.J. Hencel, A. Schumaker</i>	<b>A Level-set Transport Equation for Tracking Self-ignition Fronts in Hydrogen-Air Mixture (158)</b> <i>C. Siddappa, Z. Bouali, V. Robin</i>
17:55	<b>Adjourn</b>			

## Work in Progress Posters Session II

**(280) Metal Combustion in Composite Solid Propellants**

*J.C. Thomas, F.A. Rodriguez, K. Herder, G. Lukasik, W. Kulatilaka, E. Petersen*

**(281) Comparison of Hand and Resonant Acoustic Mixing of AP/HTPB Propellants**

*F.A. Rodriguez, J.C. Thomas, A. Hong, E. Petersen*

**(290) Experimental Study of Gasification of Argan Nut Shell and Olives Pomace. Syngas Flame Characteristics**

*B. Sarh*

**(291) Study of the Oxidation and Pyrolysis of Lubricants at High Temperatures**

*R. Juarez, N. Gutierrez, E.L. Petersen*

**(269) Investigation of Lower Explosion Limit of Hybrid Mixtures in a 20 L-sphere**

*V. Heilmann, S. Zake*

**(276) Experimental study on the performance of the standardized test method for detonation flame arresters**

*L. Ruwe, T. Heidermann, M. Kreißig, H. Kant, D. Schmidt, F. Gutte, D. Bartsch, P. Bosse, A. Lucassen*

**(285) Study of Flammability Domain of H<sub>2</sub>/CO Mixtures at Conditions Representative of the Late Phase of a Severe Accident in a PWR**

*L. Vastier, S. Nagaraju, A. Desclaux, A. Comandini, A. Bentaib, N. Chaumeix*

**(288) Experimental study on expanding spherical flames of H<sub>2</sub>/CO mixtures at O<sub>2</sub> reduced conditions**

*M. Bouton, O. Mghanen, A. Desclaux, A. Comandini, A. Bentaib, N. Chaumeix*

**(283) Numerical investigation of deflagration to detonation transition in smooth pipes**

*T. Alzer, L. Engelmann, M. Sens, A. Kempf, I. Wlokas*

Wednesday, June 22 <sup>nd</sup> , 2022 (morning sessions)				
9:00 10:00	<b>Plenary Lecture (Aula Magna): Prof. Benoît Fiorina (Université Paris-Saclay, CNRS, Laboratoire EM2C, France)</b> <b>Title: Including Detailed Chemical Properties in the Modeling of Emerging Turbulent Combustion Systems</b> <i>Chair: A. Comandini and H.D. Ng</i>			
10:00 10:10	Break (Transition to Morning Sessions)			
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>Flame Dynamics &amp; Stability</b> <i>Chair: U. Riedel</i>	<b>Dynamics of Reactive Supersonic Flows</b> <i>Chair: V. Raman</i>	<b>Detonation Initiation &amp; limits</b> <i>Chair: S. Maeda</i>	<b>Ignition I</b> <i>Chair: M.B. Luong</i>
10:10 10:35	<b>Isotope Effect on the Characteristics of the Flame-Ball-to-Deflagration. Transition in Ultra-Lean Hydrogen- and Deuterium-Air Mixtures in Horizontal Hele-Shaw Cell (216)</b> <i>I.A. Kirillov, V. Denisenko, V. Plaksin, A. Melikhov</i>	<b>Numerical Simulation of Laminar Premixed Hydrogen-Air Flame/Shock Interaction under Low-Pressure Conditions (72)</b> <i>E. Yhuel, G. Ribert, P. Domingo</i>	<b>Experimental Study on Detonation Wave Initiation by Reflected Blast Wave in Laser Ignition (179)</b> <i>T. Sato, K. Matsuoka, A. Kawasaki, N. Itouyama, H. Watanabe, J. Kasahara</i>	<b>Experimental and Numerical Study of Autoignition/Deflagration Transition Limit in an optical Rapid Compression Machine (155)</b> <i>H. Ossman, C. Strozzi, J. Sotton, M. Bellenoue</i>
10:35 11:0	<b>A Tsuji Burner in a Counterflow (264)</b> <i>B. Li, A.L. Sanchez, F. Williams</i>	<b>Stability Analysis of the Noh Problem for Reactive Shocks (265)</b> <i>C. Huete, A. Calvo-Rivera, A.L. Velikovich</i>	<b>The Critical Dynamics of Direct Initiation of Spherical Detonations (223)</b> <i>R. Hernández Sánchez, B. Denet, P. Clavin</i>	<b>Comparison between Laser Ignition and Spark-Plug Ignition of Flowing Propane-Air Mixtures (52)</b> <i>K. Eto, Y. Kojima, W. Kim, T. Johzaki, T. Endo</i>
11:00 11:25	<b>Scaling Laws for Velocity Dynamics of the Ultra-lean Hydrogen-Air Flames Expanding in Horizontal Cylindrical Hele-Shaw Cell (221)</b> <i>P.V. Moskalev, V.P. Denisenko, I.A. Kirillov</i>	<b>Numerical Study of Low-Frequency Supersonic Combustion Instability in a Hydrogen-fueled Scramjet Engine (199)</b> <i>S.M. Jeong, H.S. Han, E.S. Lee, J.-Y. Choi</i>	<b>A Three-step, Three-gamma Model for the Numerical Modeling of the Critical Height of the Propagation of Semi-confined Detonation Waves (59)</b> <i>S. Taileb, E. Rougon, V. Robin, V. Rodriguez, S. Lau-Chapdelaine, P. Vidal, J. Melguizo-Gavilanes, A. Chinnayya</i>	<b>Numerical Simulation of LOx/CH4 Supercritical Combustion in a non-Homogenous Mixture (84)</b> <i>F. Monnier, G. Ribert</i>
11:25 11:50	Break			
Topics	<b>Pressure-Gain Combustion</b> <i>Chair: M. Gamba</i>	<b>Flame Acceleration &amp; DDT II</b> <i>Chair: J. Hasslberger</i>	<b>Detonation Modelling III</b> <i>Chair: A. Chinnayya</i>	<b>Chemical Kinetics V</b> <i>Chair: N. Chaumeix</i>
11:50 12:15	<b>Identification of Multiple Combustion Modes in Continuous Detonation Engines (87)</b> <i>J.Z. Ma, J.P. Wang</i>	<b>Critical Conditions for Flame Acceleration and DDT for Hydrogen-Air Mixtures at Cryogenic Temperatures (259)</b> <i>M. Kuznetsov, A. Denkevits, A. Friedrich, A. Vesper</i>	<b>Shock Dynamics from Quenched Detonations: Diffraction and Gallop Problems (156)</b> <i>M.I. Radulescu</i>	<b>Improvement of the Global Quasi-Linearisation (GQL) Model Reduction Method (69)</b> <i>C. Yu, V. Bykov, U. Maas</i>
12:15 12:40	<b>TDLAS for Sensing Pre-vaporized Jet A-1 in Liquid-fuel Pressure Gain Combustion (31)</b> <i>P.H. Chang, N. Teo, J.M. Li, X. Huang, C.J. Teo, B.C. Khoo</i>	<b>On the Possibility of Non-dimensionalizing DDT Limits and Distances (67)</b> <i>V. Rodriguez, V. Monnier, P. Vidal, R. Zitoun</i>	<b>Detonation Propagation in a Semi-confined Mixture with a Diffuse Interface (249)</b> <i>M. McLoughlin, V. Yousefi Asli, G. Ciccarelli</i>	<b>REDIM Reduced Modeling of Flame-Wall-Interactions of Premixed Natural Gas / Air Systems (172)</b> <i>C. Straßacker, U. Maas</i>
12:40 13:05	<b>Numerical Study on the Unsteady Rotating Detonation Flow-field Interacted with Turbine Guide Vane (102)</b> <i>D. Shen, M. Cheng, K. Wu, Z. Sheng, J.P. Wang</i>	<b>A One-dimensional Model for Deflagration-to-detonation Transition of an Elongated Flame (82)</b> <i>H. Tofailli, P. Clavin, G. Lodato, L. Vervisch</i>	<b>Modelling Detonation Reflection with Nonsteady Shock Change Equation (73)</b> <i>D.T. Schoeffler, J. Shepherd</i>	<b>Experimental Investigation of the Combustion Properties of a Representative Thermal Runaway Gas from Li-Ion Batteries (47)</b> <i>O. Mathieu, M. Turner, D. Mahr, J.C. Thomas, E. Petersen</i>
13:05 13:30	<b>Numerical Analysis on Pressure Gain of Rotating Detonation Engine Using H<sub>2</sub>-O<sub>2</sub> Gases: Influence of Number of Injector (218)</b> <i>A.K. Hayashi, K. Yoshidomi, K. Ozawa, N. Tsuboi, H. Kawashima</i>	<b>An Experimentally Informed 1-D DDT Model for Smooth Narrow Channels (106)</b> <i>J. Melguizo-Gavilanes, L. Bauwens</i>	<b>Numerical Study of Detonation Propagation through a Gravity-driven Layer of Hydrogen-Oxygen over an Inert Gas (257)</b> <i>M. Menezes, S. Lau-Chapdelaine, G. Ciccarelli</i>	<b>Experimental and Numeric study on the Inhibition Properties of Novec (225)</b> <i>S. Nagaraju, S. Abid, A. Comandini, N. Chaumeix</i>
13:30	Light Meal for Excursion			
	14:30 - Wednesday Excursion			



Thursday, June 23 <sup>rd</sup> , 2022 (morning sessions)				
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>Explosion Safety II</b> <i>Chair: K. Vågsæther</i>	<b>Flame Acceleration &amp; DDT III</b> <i>Chair: I.A. Kirillov</i>	<b>Turbulent Flames I</b> <i>Chair: V. Bykov</i>	
9:00 9:25	<b>Shock Transmission from Detonating Mixtures in Open Tubes (124)</b> <i>J.C. Thomas, F.A. Rodriguez, D. Teitge, L. Kunka, N. Gaddis, Z. Browne, C. Ahumada, T. Balci, S.I. Jackson, E. Petersen, E. Oran</i>	<b>Detonability Enhancement by Use of a Nanosecond Plasma (219)</b> <i>M. Ali Cherif, V. Lafaurie, S. Starikovskaia, P. Vidal</i>	<b>Surface Density Function and its Evolution in Homogeneous and Inhomogeneous n-Heptane MILD Combustion (64)</b> <i>K. Abo-Amsha, N. Chakraborty</i>	
9:25 9:50	<b>Influence of Hemicylindrical Obstacle Scale and Length on an Impacting Blast Wave (181)</b> <i>R.N. Gavart, S. Trélat, M.-O. Sturtzer, N. Chaumeix</i>	<b>Thermochemical Aspects of Superknock Development in IC Engines (261)</b> <i>M.B. Luong, E. Tingas, H.G. Im</i>	<b>Flame Self-Interactions in Turbulent Homogeneous-Mixture n-heptane MILD Combustion (119)</b> <i>K. Abo-Amsha, N. Chakraborty</i>	
9:50 10:15	<b>REKO-Fire: New Facility to Investigate Cable Fire Impact on Passive Autocatalytic Recombiners (171)</b> <i>G. Nobrega, M. Klauck, E.-A. Reinecke, N. Chaumeix, A. Bentaib, L. Maas</i>		<b>Numerical Investigation of the Global Equivalence Ratio Effects on the Dynamic Behavior of Turbulent Swirling Diffusion Flame (240)</b> <i>S. Chakchak, T. Boushaki, A. Hidouri, M. Chrighui</i>	
10:15 10:40	<b>Effect of Mach number on the Flame Acceleration and Deflagration-to-Detonation Transition (42)</b> <i>W. Zhao, J. Liang, X. Cai, R. Deiterding, X. Wang</i>	<b>Simulation of Flame Acceleration and Deflagration-to-Detonation Transition in Components of Chemical Plants (24)</b> <i>C. Wieland, C. Hirsch, T. Sattelmayer, F. Scharf, V. Hoferichter, H.P. Schildberg</i>	<b>DNS of Turbulent Spray Flame Water Droplet Interaction Using an Euler-Lagrange-Lagrange Scheme (25)</b> <i>J. Hasslberger, R. Concetti, N. Chakraborty, M. Klein</i>	
10:40 11:05	<b>Break and Work-In-Progress Posters Session III</b>			
Topics	<b>Oblique Detonation</b> <i>Chair: J.Y. Choi</i>	<b>RDE VI</b> <i>Chair: K. Ishii</i>	<b>Fire Dynamics</b> <i>Chair: Y.-C. Chien</i>	<b>Energetic Materials I</b> <i>Chair: S. Jackson</i>
11:05 11:30	<b>The Impact of a Micro-Rounded Bump on the Initiation of Oblique Detonation Waves (176)</b> <i>C. Yan, G. Bakalis, R. El-Chaar, H. Teng, H.D. Ng</i>	<b>Experimental Study of Liquid Propellant Rotating Detonation Combustor (170)</b> <i>S. Ito, K. Ishihara, K. Yoneyama, K. Goto, N. Itouyama, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki</i>	<b>Experimental Study of Firebrand Lofting Mechanism in a Fire Whirl Induced Flow Field (74)</b> <i>Y. Zhang, A. Albadi, Y. Zhang</i>	
11:30 11:55	<b>Experimental Study of Stabilized Oblique Detonation Waves (93)</b> <i>D.A. Rosato, M.R. Thornton, K. Ahmed</i>	<b>Temperature and Heat-Flux Measurements in a Thin-Wall RDE (37)</b> <i>C.A. Stevens</i>	<b>Statistical Research on Firebrand Behaviour in a Simulated 3D Fire Whirl (32)</b> <i>Y. Zhang, Y. Zhang</i>	<b>Investigation of Micro- and Nano-Catalytic Additive Effects on Ammonium Perchlorate Combustion (125)</b> <i>F.A. Rodriguez, J.C. Thomas, T. Sammet, D. Teitge, E. Petersen</i>
11:55 12:20	<b>Experimental Observation of Non-uniformly Premixed Oblique Detonation (189)</b> <i>K. Iwata, N. Hanyu, S. Maeda, T. Obara</i>	<b>Self-excited Wave Propagation in a Reflective Shutling Detonation Combustor (21)</b> <i>M.J. Ullman, S. Prakash, D.R. Jackson, V. Raman C.D. Slabaugh, J.W. Bennowitz</i>	<b>Numerical Prediction of Cables Fire Behaviour Using Non-Metallic Components in Cone Calorimeter (262)</b> <i>A. Alonso Ipina, M. Lazaro, D. Lazaro, D. Alvear</i>	<b>Understanding Thermochemical Aspects of the Magnesium Metal Fuel subjected to Hygrothermal Aging with Varied Oxygen Flow Rates (195)</b> <i>J. Oh, J.J. Yoh</i>
12:20 12:45	<b>Formation and Regulation of Unsteady Detonation Mach Stem in A Confined Space (20)</b> <i>S. Niu, P. Yang, H. Teng</i>	<b>Shock-Droplet Interactions and Reaction of Liquid RP-2 Fuel (198)</b> <i>J.P. Patten, K. Ahmed, R. Hytovick, R.F. Burke</i>		<b>Experimental Evaluation of Plain Metal Additives for Solid-Fuel Propulsion Applications (123)</b> <i>J.C. Thomas, F.A. Rodriguez, E. Petersen</i>
12:45	<b>Lunch (Biblioteca Gasparini, 2<sup>nd</sup> Floor)</b>			

Thursday, June 23 <sup>rd</sup> , 2022 (afternoon sessions)				
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>Ignition II</b> Chair: <i>C. Strozzi</i>	<b>Flame Acceleration &amp; DDT IV</b> Chair: <i>J. Melguizo-Gavilanes</i>	<b>RDE VII</b> Chair: <i>A. Kawasaki</i>	<b>Shock Tube I</b> Chair: <i>D. Nativel</i>
14:15 14:40	<b>A Study on Influences of Hydrogen Addition and Turbulence on Ignition Characteristics of Propane Mixtures (35)</b> <i>M. Nakahara, K. Tanimoto, H. Kudo, F. Abe, K. Tokunaga</i>	<b>Effect of Flame Front Thermo-Diffusive Instability on Flame Acceleration in a Tube (220)</b> <i>J.-J. Hok, O. Dounia, O. Vermorel, T. Jaravel</i>	<b>Detonations and Thermoacoustic Modes in a Flow through RDC (139)</b> <i>E.J. Gutmark, V. Anand, J. Betancourt, A. Gaetano, T. Pritschau, R. Wiggins</i>	<b>Shock-tube Study of the Ignition of Fuel-rich CH<sub>4</sub>/ or Natural Gas/Ozone/Air Mixtures at High Pressure (15)</b> <i>J. Herzler, M. Fikri, C. Schulz</i>
14:40 15:05	<b>Real Gas Effect on Ignition Characteristics in Ideal and Non-ideal Reactors (17)</b> <i>Z. Weng, Z. Li, R. Mevel</i>	<b>Investigation of Iso-propyl Nitrate as a Detonation Improver (184)</b> <i>R.A. Mousse, M.A. Burnett, S. Abid, S. de Persis, A. Comandini, M.S. Wooldridge, N. Chaumeix</i>	<b>State-to-State Model for Rotating Detonation Combustors (243)</b> <i>M. Gamba, A. Feleo, J. Shepard, F. Chacon</i>	<b>Simultaneous CO and H<sub>2</sub>O Laser Absorption Measurements of Pentene Isomers in a Shock Tube (95)</b> <i>C.M. Gregoire, C. Westbrook, O. Mathieu, S.P. Cooper, S. Alturaifi, E. Petersen</i>
15:05 15:30	<b>Incompletely Stirred Reactor Network Modeling for the Estimation of Turbulent Non-Premixed Autoignition (51)</b> <i>S. Iavarone, S. Gkantonas, E. Mastorakos</i>	<b>Numerical Study of Multi-dimensional Effects on the Transition to Detonation from Subsonic Self-ignition Waves Propagating at Constant Speed (130)</b> <i>S. Taileb, E. Rougon, A. Chinnayya, V. Robin</i>	<b>Experimental Results for 25-mm and 51-mm RDRE Combustors (29)</b> <i>C. Knowlen, T. Mundt, M. Kurosaka</i>	<b>Probing PAH Formation from Cyclopentene Pyrolysis in a Single-Pulse Shock Tube (209)</b> <i>L. Carneiro Piton, A. Hamadi, F. Cano, S. Abid, N. Chaumeix, A. Comandini</i>
15:30 15:55	<b>Reactions involved in the Heat Release and Pressure Wave Development during Autoignition of PRF/air Mixtures (27)</b> <i>H.C. Lee, P. Dai, Z. Chen</i>	<b>The Effect of Buoyancy on Flame Acceleration in Hydrogen-air Mixtures: Experiments in Horizontal and Vertical Tubes (194)</b> <i>E.V. Bezhgodov, S.D. Pasyukov, A.A. Tarakanov, M.V. Nikiforov, Yu.F. Davletchin, V.A. Simonenko, I.A. Kirillov</i>	<b>Effects of Partial Mixing and Confinement on Characteristic Detonation Parameters and RDE Mode of Operation (231)</b> <i>S.C. Redhal, M. Chang, J.R. Burr, and K.H. Yu</i>	<b>Probing Pyrolytic PAH Chemistry in High-Repetition-rate Shock Tube Coupled to Synchrotron-based Double Imaging Photoelectron/ Photoion Coincidence Spectroscopy (233)</b> <i>F.E. Cano Ardila, S. Nagaraju, R.S. Tranter, S. Abid, A. Desclaux, A. Roque, N. Chaumeix, A. Comandini</i>
15:55 16:20	<b>Break and Work-In-Progress Posters Session III</b>			
Topics	<b>Condensed Phase Detonation II</b> Chair: <i>C. Chiquete</i>	<b>Shock Tube II</b> Chair: <i>J. Herzler</i>	<b>Numerical Methods</b> Chair: <i>F.S. Marra</i>	
16:20 16:45	<b>Effect of Microstructure on Detonation Performance of the Insensitive High Explosive PBX 9502 (60)</b> <i>S. Voelkel, E.K. Anderson, M. Short, C. Chiquete, S.I. Jackson</i>	<b>The Effect of Oxygenated Species on the Fuel-rich Oxidation of CH<sub>4</sub> in the Context of Polygeneration: Extinction, CO-Concentration and Temperature Measurements (54)</b> <i>D. Nativel, J. Herzler, M. Fikri, C. Schulz</i>	<b>Reduced Order Modeling of 2-D Reaction-Diffusion System Based on POD-DEIM and k-means Clustering (65)</b> <i>E.A. Cuttillo, G. Petito, K. Bizon, G. Continillo</i>	
16:45 17:10	<b>Using a High Speed Hyperspectral Camera to Measure Gas Temperature And Concentration Profiles Resulting From Detonation of TNT (266)</b> <i>Gagnon, J.-P. (Boubanga-Tombet S.)</i>	<b>Ignition of Lubricating Oils using a Novel Spray Injection Technique in a Shock Tube (49)</b> <i>S.P. Cooper, E. Petersen</i>	<b>Numerical Method Based-cellular Automata for Heat Transfer with Application to the Self-Ignition of Energetic Materials (135)</b> <i>A. Violet, E. El-Tabach, P. Gillard, M. William-Louis</i>	
17:10 17:35	<b>Initiation of Sympathetic Detonation between two Separated PETN charges (110)</b> <i>D. Murray, A. Vashishtha, D. Lenihan, D. Callaghan, C. Nolan</i>	<b>Probing PAH Formation from Heptane Pyrolysis in a Single-pulse Shock Tube (180)</b> <i>A. Hamadi, F. Cano, L. Carneiro Piton, S. Abid, N. Chaumeix, A. Comandini</i>		
17:35	<b>Adjourn</b>			
	<b>18:15 - Banquet</b>			

## Work in Progress Posters Session III

**(275) Nitromethane Droplet Breakup and Combustion in a Detonation Environment**

*S. Briggs, N. Berube, D. Dyson, A. Arakelyan, S. Vasu*

**(277) Investigation of NH<sub>3</sub>-H<sub>2</sub> mixtures in a plug-flow reactor**

*L. Ruwe, S. Schmitt, D. Zhu, B. Shu, K. Kohse-Höinghaus, A. Lucassen*

**(289) An Experimental Study of the Formation of CO During Ethanol Pyrolysis and Dry Reforming with CO<sub>2</sub>**

*O. Mathieu, C.M. Gregoire, S.P. Cooper, E. Petersen*

**(292) Spectroscopic CO and H<sub>2</sub>O Laser Absorption Measurements: Chemical Kinetics Investigation of Toluene Combustion in a Shock-Tube**

*C.M. Gregoire, S.P. Cooper, E. Petersen*

**(294) Experimental Investigation of High-Pressure Oxy-Syngas Combustion with High CO<sub>2</sub> Dilution**

*S.P. Cooper, M. Turner, D. Mohr, O. Mathieu, E. Petersen*

**(278) A mathematical model for autoignition**

*J. Harris, C. Please, J. Ockendon*

**(286) A new generation kinetic model for pyrolytic soot formation**

*T.I. Viola, L. Carneiro Piton, A. Hamadi, N. Chaumeix, A. Comandini*

**(271) Probing Fuel-rich oxidation of 1,3-Butadiene at high-temperature using quantum-cascade-laser dual-comb spectroscopy**

*M. Geiser, R. Rahman, F. Arafin, R. Horvath, S. Vasu*

**(273) Detonation Tube Setup for Liquid Fuel Droplet in Detonation Wave Experiments**

*N. Berube, S. Briggs, S. Vasu, A. Arakelyan, D. Dyson*

Friday, June 24 <sup>th</sup> , 2022 (morning sessions)				
	Aula Magna (1 <sup>st</sup> Floor)	Aula C (2 <sup>nd</sup> Floor)	Aula D (2 <sup>nd</sup> Floor)	Aula E (2 <sup>nd</sup> Floor)
Topics	<b>Energetic Materials II</b> <i>Chair: J.C. Thomas</i>	<b>Detonation Boundary Interaction</b> <i>Chair: G. Ciccarelli</i>	<b>RDE VIII</b> <i>Chair: C. Knowlen</i>	<b>Multiphase III</b> <i>Chair: X.C. Mi</i>
9:00 9:25	<b>Hydrodynamic Characterization of the Aging Induced Performance Degradation of HMX-Based Explosive PBX 9404 (215)</b> <i>S.I. Jackson, C. Chiquete, E.K. Anderson</i>	<b>Influences of a Small Step on the Side Wall upon Detonation Propagation (66)</b> <i>Y. Seki, T. Honda, W. Kim, T. Johzaki, T. Endo</i>	<b>Development of an Automatic-Calibrating Small-Scale Thrust Stand for Rotating Detonation Rocket Engines (112)</b> <i>A.R. Kotler, R.F. Burke, T. Rezzag, K. Ahmed</i>	<b>Experimental Investigation of Reacting Fuel Droplets Interactions with Detonation Waves (250)</b> <i>D. Dyson, A. Arakelyan, N. Berube, S. Briggs, J. Ramirez, E. Ninnemann, K. Thurmond, G. Kim, W. Green, H.S. Udaykumar, S. Menon, S. Vasu</i>
9:25 9:50	<b>A Modeling of Metalized Solid Fuel Surface Combustion (196)</b> <i>H.S. Choi, S.Y. Han, J.J. Yoh</i>	<b>An Immersed-Boundary Projection Method for Studies of Detonation Waves Interacting with Thin Obstacles (98)</b> <i>X. Lu, H. Yu, C. Pantano, E. Oran</i>	<b>Experimental Study of the Miniaturized Cylindrical Rotating Detonation Engine (201)</b> <i>K. Hattori, K. Ota, K. Ishihara, K. Goto, N. Itouyama, H. Watanabe, A. Kawasaki, K. Matsuoka, J. Kasahara, A. Matsuo, I. Funaki</i>	<b>Numerical Study of Multi-Dimensional Liquid-Fuel n-Dodecane/Air Detonations with Complex Chemistry (150)</b> <i>S.S. Dammati, Y. Kozak, A. Poludnenko</i>
9:50 10:15	<b>Laser Ignition of a Low-vulnerability RDX-based Propellant: Influence of the Atmosphere on Ignition and Combustion Properties (55)</b> <i>S. Delbarre, L. Courty, P. Gillard</i>	<b>Experiments of the Tri-arc Non-Circular Rotating Detonation Engine (RDE) (202)</b> <i>J.H. Lee, E.S. Lee, H.S. Han, J.M. Kim, J.-Y. Choi</i>	<b>Investigation of Wave Velocity in a Hybrid Rotating Detonation Engine (166)</b> <i>M. Assad, O. Penyazkov, I. Chernukho</i>	<b>Numerical Analysis on the Breakup of Dilute Water Spray in Gaseous Detonation (165)</b> <i>H. Watanabe, A. Matsuo, A. Chinnayya, K. Matsuoka, A. Kawasaki, J. Kasahara</i>
10:15 10:40	<b>Characterization of High Pressure Electrolytic Decomposition of Hydroxylammonium Nitrate Aqueous Solution using FTIR (79)</b> <i>M.H. Wu, K.I. Lao, Y.T. Chou</i>	<b>Investigation of Iso-propyl Nitrate as a Detonation Improver (184)</b> <i>R.A. Mousse, M.A. Burnett, S. Abid, S. de Persis, A. Comandini, M.S. Wooldridge, N. Chaumeix</i>	<b>Wall Heat Flux Measurements behind a Shock Wave Generated by a Detonation (239)</b> <i>F. Viro, H. Quintens, B. Boust, J. Sotton, M. Bellenoue</i>	<b>Steady and Transient One-dimensional Simulations of Multiphase Dodecane/air Detonations (252)</b> <i>N.J. Tricard, A. Ghosh, S.S. Dammati, A. Poludnenko, X. Zhao</i>
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11:30 11:55	<b>Thermodynamic Analysis of Unsteady Propulsion Systems (107)</b> <i>R. Fievisohn, C. Stevens</i>	<b>Effect of preburn Inhomogeneities on the Detonation Velocity in a Rotating Detonation Rocket Engine (148)</b> <i>G. Vignat, D. Brouzet, M. Ihme</i>		
11:55 12:20	<b>Operation Characteristics of a Disk-Type Rotating Detonation Engine (203)</b> <i>K. Ishii, K. Ohno, H. Kawana, K. Kawasaki, A.K. Hayashi, N. Tsuboi</i>	<b>Study of Fuel-Oxygen Mixing in a Rotating Detonation Engine Cold Analog (185)</b> <i>M. McLoughlin, S. Gray, G. Ciccarelli</i>		
12:20	Adjourn			
12:30 - Farewell Party				