

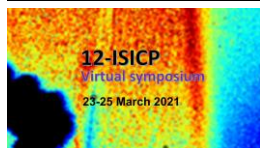
12th International Symposium on Special Topics in Chemical Propulsion & Energetic Materials (12-ISICP)

Preliminary Technical Program/Agenda, Issue F dated 20th March '21

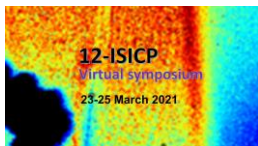
Virtual Symposium

23-25 March 2021 (with a short Welcome on 22nd March)

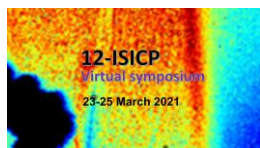
CET Start Time	Monday, March 22, 2021 (Day "0")		
2:00 PM to 2:30 PM	Welcome Prof. Richard Yetter, Penn State University (USA)		
	Tuesday, March 23 (Day 1)		
12:00 PM	Invited Speaker Asst. Prof. Ellen Mazumdar, Georgia Tech (USA) Optical diagnostics for multiphase combustion of propellants and energetic materials		
12:30 PM	Invited Speaker Mr Ronald Veraar, TNO (The Netherlands) Ramjet Propulsion for Projectiles - An Overview of World-Wide Achievements and Future Opportunities		
	Stream 1	Stream 2	Stream 3
	Chair: Prof. Alon Gany Technion (Israel)	Chair: Prof. Charles Kappenstein Uni. of Poitiers (France)	Chair: Dr. Helmut Ciezki German Aerospace Center, Institute of Space Propulsion (Germany)
1:00 PM	Technical Area: 16 Paper N ^o 70671 Study of the combustion wave structure in a GAP/AP propellant <u>Tamiaki Takasago</u> , Kazuki Nagao, Yutaka Wada, Kaiichi Baba, Tatsuya Oda	Technical Area: 18 Paper N ^o 70646 Enhancement of Combustion of a solid fuel ramjet for its application in an artillery shell <u>Yogeshkumar Velari</u> , R. V. Reji, Prof P. A. Ramakrishna	
1:20 PM	Technical Area: 16 Paper N ^o 65863 Investigation and production of hexaaluminate-ceramics <u>Dr. Tijen Seyidoglu</u> , Robert Jan Koopmans,	Technical Area: 18 Paper N ^o 70659 Unsteady Combustion in Hybrid Rocket with Liquefying Fuel <u>Jina Kim</u> , Wonjeong Hyun, Changjin Lee	Technical Area: 12 Paper N ^o 70638 Reduction of Pyro Shock in Stage Separation Mechanism by use of Gas Generator Systems <u>A.Chakraborty</u> , N. Rathi, Prof P. A. Ramakrishna, M. Haradanahalli, R Srinivasan A.



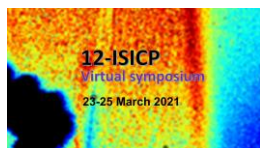
1:40 PM	<p>Technical Area: 1 Paper N° 70663</p> <p>Combustion Performance of the Nanosized Nitrocellulose and Its Nanocomposites Produced by the Supercritical Antisolvent Processing</p> <p><u>Nikita Muravyev</u>, Dimitri B. Meerov, Mikhail N. Zharkov, Ilya V. Kuchurov</p>	<p>Technical Area: 17 Paper N° 70692</p> <p>Scientific misconducts from retracted or corrected articles - Case studies including energetic materials</p> <p>Prof. Charles Kappenstein</p>	<p>Technical Area: 8 Paper N° 70806</p> <p>The Effects of Accelerated Aging with High Relative Humidity and Temperature on the Boron Potassium Nitrate (BPN) Pyrotechnic Composition</p> <p><u>Beril Dumalilar Tabak</u>, Dr. Nil Ezgi Dincer Yilmaz</p>
2:00 PM	<p>Technical Area: 3 Paper N° 70627</p> <p>Printable Energetic Materials</p> <p><u>Levi Gottlieb</u>, Yoav Eichen, Yuval Zertal, Avishai Levi, Matthew Young</p>	<p>Technical Area: 6 Paper N° 70630</p> <p>Effect of the melt viscosity on regression rate of low-melting solid fuel in hybrid rocket engines</p> <p><u>Sergey Rashkovskiy</u>, Sergey Yakush</p>	<p>Technical Area: 14 Paper N° 70658</p> <p>Testing Water-Augmented Rocket Motor</p> <p><u>Nachum E. Eisen</u>, Prof. Alon Gany</p>
2:20 PM	<p>Technical Area: 3 Paper N° 70805</p> <p>Solventless Extruded Double Base (EDB) propellant charges - a review of the properties, technology, and applications</p> <p><u>Jim Fleming</u>, Martijn Zebregs, Chris van Driel, Dr. Werner Rousseau</p>	<p>Technical Area: 6 Paper N° 66492</p> <p>Understanding burning of heterogeneous solid propellants through mesoscale modeling</p> <p><u>Stany Gallier</u>, Mathieu Plaud</p>	<p>Technical Area: 14 Paper N° 70675</p> <p>Recent Advances in Gel Propulsion Technology at DLR Lampoldshausen</p> <p><u>Christoph Kirchberger</u>, Maxim Kurilov, Sophie Ricker, Dominic Freudenmann</p>
2:40 PM	<p>Technical Area: 3 Paper N° 70679</p> <p>Formulation Design – An Integrated Approach</p> <p>Prof. Adam Cumming</p>	<p>Technical Area: 10 Paper N° 66552</p> <p>Optical Investigation on the Hypergolic Reaction of Green Liquid Ionics with Highly Concentrated Hydrogen Peroxide</p> <p><u>Dr. Robert Stützer</u>, Jakob Balkenhohl, Felix Lauck, Michael Oschwald, Stefan Schlechtriem</p>	<p>Technical Area: 15 Paper N° 70443</p> <p>Analysis of the Multistep Degradation Kinetics of EPDM-based Thermal Protection System</p> <p>Ramin Shilav, Dr. Levi Gottlieb</p>
3:00 PM	<p>Panel 1 Technical Area: 3</p> <p>3D printing of energetics & RAM: what new applications are expected by 2025?</p> <p>Chair: Prof. R Yetter Dr. Eric Beckell, US Army Lawrence Farrar, Resodyn Corp Prof. Lori Groven, South Dakota School of Mines Prof. Steven Son, Purdue University Dr. Kyle Sullivan, US Army</p>	<p>Technical Area: 11 Paper N° 70321</p> <p>Ammonium nitrate - Thermal vaporization vs catalytic decomposition: recent results into an old field</p> <p><u>Prof. Charles Kappenstein</u>, Yann Batonneau PhD, Romain Beauchet</p>	<p>Technical Area: 15 Paper N° 70678</p> <p>Influence of Nozzle Radiation on Solid Rocket Motors Tail-off Thrust</p> <p><u>Prof. Fabrizio Pontj</u>, Mini Stefano, Luca Fadigati, Adriano Annovazzi, Michela Archi</p>



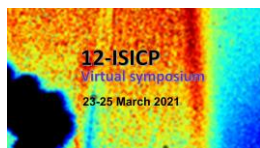
3:20 PM	(Note that Panel 1 will finish at 4 PM)	Technical Area: 11 Paper N° 70693 Participation of Poitiers to European Programs on Space Propulsion GRASP, PRECISE, RHEFORM and GRAIL: an Overview <u>Prof. Charles Kappenstein</u> , Yann Batonneau, PhD	Technical Area: 2 Paper N° 70297 Development and Performance Evaluation of “Green” Primary Explosives for Use in Electro-explosive Devices and Detonators <u>Euan McLean</u> , Dr Alistair MacCuish, Prof. David K. Harrison, Dr Rob P. Claridge, Patrick McMaster
3:40 PM			Technical Area: 2 Paper N° 70647 A Novel Method of Assessing Impact Sensitivities of Energetic Materials <u>Patrick McMaster</u> , Dr David M. Williamson, Olivia J. Morley
March 24 (Day 2)			
11:00 AM	Invited Speaker Prof. Sergey A. Rashkovskiy , Ishlinsky Institute for Problems in Mechanics (Russia) Non-one-dimensional combustion modes of solid homogeneous energetic materials		
11:30 AM	Invited Speaker Prof. Luigi DeLuca , Politecnico di Milano (Italy) Nano aluminum for solid rocket propulsion: illusions and reality		
	Stream 1 Chair: Prof. Kenichi Takahashi Nihon University (Japan)	Stream 2 Chair: Prof. P.A. Ramakrishna Indian Inst. of Technology (India)	Stream 3 Chair: Prof. Jack Yoh Seoul National University (Korea)
12:00 PM	Technical Area: 10 Paper N° 70662 Methods of Analysis of T-burner Experimental Data Ganesan S, S. R. Chakravarthy	Technical Area: 14 Paper N° 66622 Combustion mechanism of uncured polyethylene glycol and glycidyl azide polymer mixture fuel <u>Yutaka Wada</u> , Kazuki Nagao, Tamiaki Takasago, Shintaro Hatano, Kaiichi Baba	Technical Area: 1 Paper N° 66493 New Insights in the Energetic Materials Performance Enhancement Through Synergistic Effect of Hybridized Carbon-Based Nano-Additives Properties Modification by Electrostatic Field <u>Alexander Lukin, Yutaka Wada</u>
12:20 PM	Technical Area: 10 Paper N° 70665 Residue oxide particle size distribution studies of aluminized solid propellants using plume collection <u>Robin Rathi</u> , Hiteshkumar Zinjala, Satyanarayanan, R. Chakravarthy	Technical Area: 14 Paper N° 66623 Flight demonstration of GAP/N2O direct injection gas-hybrid rocket system using a small rocket <u>Shintaro Hatano</u> , Yuri Matsumoto, Tamiaki Takasago, Yutaka Wada, Kaiichi Baba	Technical Area: 1 Paper N° 70555 Nanocomponents as a Source of Increasing the Energy Potential of Chemical Propellants Valery Babuk



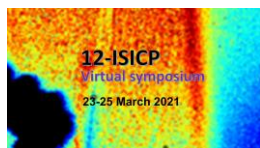
12:40 PM	<p>Technical Area: 10 Paper N° 70667</p> <p>Acoustic Admittance of the Aluminized Composite Solid Propellant by Laser Doppler Velocimetry at Low Pressure</p> <p><u>Rajendra Rajak</u>, Satyanarayanan R. Chakravarthy</p>	<p>Technical Area: 14 Paper N° 70563</p> <p>Photosensitive propellants applied to the laser-controlled combustion behavior</p> <p><u>Haonan Zhang</u>, Ruiqi Shen, Lizhi Wu, Prof. Luigi T. DeLuca, Buren Duan</p>	<p>Technical Area: 1 Paper N° 70640</p> <p>Green and MEMS-Compatible Energetic Composites with High Electrostatic Safety: Copper Azide Embedded in Oriented Carbon Nanotubes Arrays Grown on Silicon Substrate</p> <p>Xuwen Liu</p>
1:00 PM	<p>Technical Area: 10 Paper N° 70668</p> <p>Determination of Steady State Mean Burning Rate of Composite Solid Propellant Combustion under Open loop and Closed loop with Servo-Mechanism by Laser Doppler Velocimetry</p> <p><u>R Rajak</u>, S. R. Chakravarthy, B.S. Subhash Chandran, H Zinjala</p>	<p>Technical Area: 14 Paper N° 70569</p> <p>Design and Testing of Miniature Rocket Motors for control Applications</p> <p><u>Raj Alexander Y.</u>, Nikunj Rathi, R Srinivasan, Prof P. A. Ramakrishna</p>	<p>Technical Area: 11 Paper N° 66566</p> <p>Watching the ultrafast hot spots dynamics of PETN/FOX-7 under a tabletop microscope</p> <p><u>Wei Zhang</u>, Meysam Akhtar, Lawrence Salvati Dana D. Dlott, Ruiqi Shhen</p>
1:20 PM	<p>Technical Area: 10 Paper N° 70674</p> <p>Quantification of Binder melt: Aluminized Composite Propellants with RDX</p> <p><u>K Nagendra</u>, P. A. Ramakrishna, Rekha Sangtyani, Arvind Kumar</p>	<p>Technical Area: 14 Paper N° 70657</p> <p>Combustion of 5-Aminotetrazole Propellant for Laser-Augmented Chemical Propulsion</p> <p><u>Nianbai He</u>, Ruiqi Shen, Prof. Luigi T. DeLuca, Lizhi Wu, Wei Zhang</p>	<p>Technical Area: 11 Paper N° 70621</p> <p>Energetic initiators realized by Al/CuO reactive multilayer films in metal-interlayer-metal structures</p> <p><u>Fu Shuai</u>, Prof. Ruiqi Shen</p>
1:40 PM	<p>Technical Area: 10 Paper N° 70680</p> <p>Revisiting Combustion of Ammonium Perchlorate with Burn rate Modifiers</p> <p><u>Mahesh S Ingole</u>, Dr. Nagendra Kumar, Prof P. A. Ramakrishna</p>		<p>Technical Area: 11 Paper N° 70681</p> <p>Ignition Transient Study: Igniter Jet Impingement</p> <p><u>Sumit Sarma</u>, Prof P. A. Ramakrishna, Dr. Nagendra Kumar</p>
2:00 PM	<p>Technical Area: 10 Paper N° 70802</p> <p>Mechanical response of composite solid propellant under uniaxial loading</p> <p>Rajeev Ranjan, H. Murthy, V.S. Sadavarte, S.M. Pande, Debdas Bhowmik</p>		<p>Technical Area: 7 Paper N° 66531</p> <p>Ignition and Combustion Behavior of Al-Mg-Zr in Composite Propellants</p> <p>Zhao Qin</p>



2:20 PM	<p style="text-align: center;">Panel 2 Technical Areas: All</p> <p>High Throughput Experimentation and Research with Energetic Materials, Artificial Neural Networks (ANN) for combustion, etc.</p> <p>Chair: Dr J Zevenbergen, TNO Dr. Victor S Abrukov, Chuvash State University Dr. Brian Barnes, US Army Dr. Mark Johnson, US Army</p>	<p>Technical Area: 3 Paper N° 66471</p> <p>Effect of hydroborate iron additives (BH-Fe) on the properties of composite solid rocket propellants</p> <p>Prof. Wei-Qiang Pang</p>	
2:40 PM		<p>Technical Area: 3 Paper N° 70633</p> <p>Coating Viton on Flake Aluminium and Its Effects on Performance of the Solid Rocket Motor</p> <p><u>Gaurav Marothiya</u>, Prof P. A. Ramakrishna</p>	
March 25 (Day 3)			
2:00 PM	<p>Invited Speaker</p> <p>Prof. Pengwan Chen, Beijing Institute of Technology (China)</p> <p>Experiments, simulation and prediction on impact ignition and safety of polymer bonded explosives</p>		
2:30 PM	<p>Invited Speaker</p> <p>Dr. Denis Spitzer, ISL: French-German Research Institute (France)</p> <p>From spray flash evaporation to spray flash synthesis: the case of ADN</p>		
	<p>Stream 1 Chair: Prof. Greg Young Virginia Tech (USA)</p>	<p>Stream 2 Chair: Dr. Bryce Tappan Los Alamos National Laboratory (USA)</p>	<p>Stream 3 Chair: Prof. John Wen University of Waterloo (Canada)</p>
3:00 PM	<p>Technical Area: 2 Paper N° 65736</p> <p>Alternatives to existing Primary Explosives</p> <p>Michael Williams</p>	<p>Technical Area: 5 Paper N° 70614</p> <p>The fragmentation test results for hybrid rocket fuels in an oxidizing atmosphere</p> <p>Akiyo Takahashi</p>	<p>Technical Area: 6 Paper N° 66461</p> <p>Structural integrity analysis of viscoelastic low-melting-point thermoplastic fuel for hybrid rocket systems</p> <p><u>Yo Kawabata</u>, Yutaka Wada, Takeshi Yasuda, Ryo Nagase, Nobuji Kato</p>
3:20 PM	<p>Technical Area: 2 Paper N° 70654</p> <p>Effect of Piezoelectricity on the Burning Rates of Fluoropolymer and Nanoaluminum Composite Energetic Materials</p> <p>David Drewniak</p>		<p>Technical Area: 6 Paper N° 70670</p> <p>Comparative Study of Numerical Schemes for Granular Combustion</p> <p><u>Annie Rose Elizabeth</u>, Dr. T. Jayachandran</p>



3:40 PM	<p>Technical Area: 16 Paper N° 66269</p> <p>Combustion of HAN-based Propellants and Decomposition of their Components <u>Robert E. Ferguson</u>, Alan A. Esparza, Steven D. Chambreau, Ghanshyam L. Vaghjani, Evgeny Shafirovich</p>	<p>Technical Area: 14 Paper N° 70804</p> <p>Experimentation of a Large Lab-Scale Hybrid Rocket Engine Utilizing Paraffin-Based Fuels Containing High-Energy Materials Dillon J. Over</p>	
4:00 PM	<p>Technical Area: 16 Paper N° 66633</p> <p>Performance Enhancement and Ignition Delay Suppression of TMEDA using Amine-Borane Additives <u>Michael Baier</u>, Andrew Noel, Steven Son</p>	<p>Technical Area: 13 Paper N° 70803</p> <p>Ignition and Combustion of TNT-Dispersed Aluminum Powder <u>Asst. Prof. Ryan W. Houim</u>, Jacob Posey Swagnik Guhathakurta</p>	
4:20 PM	<p>Technical Area: 16 Paper N° 70687</p> <p>Characterization of Dense Green Oxidizer Formulations for Propulsion Applications Dillon J Over</p>	<p>Technical Area: 14 Paper N° 70363</p> <p>Effect of Electrical Stimuli on Combustion Behaviour of Solid Oxidizers <u>Bradley Gobin</u>, Sean Whalen, Gregory Young</p>	<p>Technical Area: 6 Paper N° 70631</p> <p>Comparison of Reactive Molecular Dynamics Simulation of HMX with FTDO Explosive <u>F. Batista Mendonça</u>, R.F. Boschi Gonçalves, José A. Fritz Fidel R., M. Galizia Domingues, G. S.Urgessa</p>
4:40 PM	<p>Technical Area: 16 Paper N° 70695</p> <p>Electrocatalytic Decomposition of Hydroxylammonium Nitrate Aqueous Solutions <u>Eric Crisp</u>, Richard Yetter, J. Eric Boyer</p>	<p>Technical Area: 18 Paper N° 70362</p> <p>Improved Hybrid Rocket Performance by Additively Manufactured Gel-Infused Solid Fuels <u>James Meier</u>, John Reynolds, Sean Whalen, Michael J. Bortner, Associate Prof. Greg Young</p>	<p>Technical Area: 6 Paper N° 70648</p> <p>Analysis and Comparison of the Performance of Paraffins Based on Reactive Molecular Dynamics <u>R.F. Boschi Gonçalves</u>, E.C. Rosa Araújo, José Atílio Fritz Fidel Rocco, Marcela Galizia Domingues</p>
5:00 PM	<p>Panel 3 Technical Area: 16</p> <p>What can be done to sustain energetic materials &/or increase the uptake of Greener materials</p> <p>Chair: Prof. Keiichi Hori, JAXA Dr. Jamie Neidert, US Army Dr. Uwe Schaller, ICT Dr. Guy Jacob, ArianeGroup</p>	<p>Technical Area: 2 Paper N° 70807</p> <p>Exploring new techniques for the analysis of nitrocellulose <u>Dr. Ruth Tunnell</u>, Dave Tod, Dan Pearce, Richard Moore, Richard Johnson</p>	<p>Technical Area: 3 Paper N° 70304</p> <p>Continuous Acoustic Chemical MicroReactor <u>Joe Mayne</u>, Lawrence C. Farrar, Bradley Sleadd, David Boruta</p>



5:20 PM	(Panel 3 will finish at 5:40 PM)	Technical Area: 10 Paper N° 70645 Hybrid Rocket Motor thrust modulation by GOX flow rate control Bruno T. Rocco, M. Galizia Domingues, L. Rocco Junior, José Atílio Fritz, Fidel Rocco, Koshun Iha	Technical Area: 3 Paper N° 70308 Safer and Cleaner Continuous ResonantAcoustic® Production of Energetic Material Mike Miller, Lawrence C. Farrar, Dr. Andrew Nelson, Michael Siirila
5:40 PM	Prof. Richard Yetter Prize Awards & Closing		
6:00 PM to 6:20 PM	Jim Fleming 13-ISICP & Santander (Spain)		

Note that the Excel version of the Programme/Agenda (that can be downloaded from [here](#)) includes the author's organisations.

Key to technical areas: -

Nº	Technical Area	Nº	Technical Area
1	Nano Technology and Innovative Methods in Energetic Material (EM) development	10	Test Methods and Diagnostic Techniques in CP and/or Combustion of EMs
2	Synthesis and Characterization of Ems	11	Ignition and Initiation Processes
3	Formulation, Processing, and Manufacturing of Ems	12	Detonation and/or Deflagration Processes
4	Insensitive Munitions	13	Enhanced Blast and Thermites
5	Hazard Reduction and Safety Aspects	14	Innovative Rocket Propulsion Techniques
6	Theoretical Modelling and Numerical Simulation for CP (Chemical Propulsion) and EM	15	Rocket Thermal Protection Materials, which may include associated liner &/or bonding with propellant
7	Performance Evaluation of EMs	16	Environmentally Friendly "Green" Propellants
8	Aging, Stability, and Compatibility	17	Commercial Applications of Ems
9	Recycling, Disposal, and Environmental Aspects	18	Performance of Advanced Propulsion Systems

