

DRAFT SCHEDULE FOR 45th IPS SEMINAR

MON	MON TALKS	Time (min)	MON (hrs)
Introduction	Dr. Greg Knowlton, President, IPSUSA Seminars, Inc.	10	8:00-8:10
Welcome	Dr. Zachary Doorenbos and Christopher Csernica, Seminar Co-Chairs	10	8:10-8:20
Session Chairs	Dr. Jesse Sabatini and Dr. Anthony Shaw		
<b>A-1 KEYNOTE</b>	<b>Homer H. Hickam, Bestselling author of "Rocket Boys," "Don't Blow Yourself Up," and retired NASA Engineer</b>	50	8:20-9:10
A-2	021. (D. Medus) New Stroboscopic Effect for Fireworks: Theoretical Approach for Comprehension and Modelisation	20	9:20-9:40
A-3	018. (T. Ritchie) Brandy, Varnish, and Vinegar? Not Your Typical Gunpowder Ingredients	20	9:40-10:00
A-4	072. (M. Rusan) Investigation of Sparkler Formulations	20	10:00-10:20
break	Poster Setup	30	10:20-10:50
Session Chairs	Dr. Lori Groven and Tim Manship		
B-1	037. (A. Lawrence) Microwave Enhancement of Boron-Containing Solid Propellant Combustion	20	10:50-11:20
B-2	067. (J. Lajoie) Microwave-Initiated Thermite Antenna Igniters with Bandwidth Selectivity	20	11:20-11:40
B-3	069. (S. Barkley) Microwave Enhancement of Pyrotechnic Flames	20	11:40-12:00
lunch		80	12:00-1:20
Session Chairs	Dr. Steve Son and Dr. Jared Moretti		
C-1	075. (C. Wernex) Thermal Decomposition of Ammonium Perchlorate with Lithium Cobalt Oxide-based Catalysts	20	1:20-1:40
C-2	070. (A. Hoganson) Martian Rocket Fuel: Characteristics of an ISRU-based Solid Rocket Propellant made with Martian Perchlorate Oxidizers	20	1:40-2:00
C-3	082. (T. Manship) Correlation of Dynamic Mechanical Analysis and Indentation Data to Uniaxial Tensile Mechanical Properties using Machine Learning Algorithms	20	2:00-2:20
C-4	019. (S. Rugh) Molecular Perovskite based Composite Propellant	20	2:20-2:40
break/poster	Poster Setup	20	2:40-3:10
Session Chairs	Dr. Jan Puszynski and Dr. Dylan Kline		
D-1	064. (J. Whaley) Advances in Resodyn Acoustic Mixer Processing Methods and Characterization	20	3:10-3:30
D-2	047. (S. Trant) Continuous ResonantAcoustic® Production of Energetic Material	20	3:30-3:50
D-3	095. (W. Eck) Emerging Methods for Toxicological Testing	20	3:50-4:10
D-4	039. (R. Pettifer) Application of Sample Controlled Thermal Analysis Techniques to Pyrotechnic Systems	20	4:10-4:30
D-5	050. (S. Knapp) Influence of Mixture Properties and Preparation Methods on Burning Rate of Pyrotechnic Mixtures	20	4:30-4:50

Picnic

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TUES	TUES TALKS	Time (min)	TUES (hrs)
Session Chairs	Dr. Lori Groven and Cathleen Freeman		
<b>E-1 INV 2</b>	<b>XX. (M. Pantoya); The Reactive Behaviors of Stressed-Out Fuel Particles</b>	50	8:00-8:50
E-2	008. (M. Zaitzeff) Flexoelectricity in Reactive Systems	20	8:50-9:10
E-3	016. (W. Sawka) Electric Solid Propellant: A Safer, Versatile Energetic for Pyrotechnic Simulators and Special Effects	20	9:10-9:30
E-4	059. (D. Olsen) Computational Analysis of Ignition of PVDF/nAl Composites under Laser Excitation	20	9:30-9:50
break/posters		20	9:50-10:10
Session Chairs	Scott Hall and Sebastin Knapp		
F-1	010. (T. Wagner) Comparison of Burning Rate Measurements for Crawford Bomb, Class III Motor, and Dual Propellant Pseudo Motor	20	10:10-10:30
F-2	028. (A. Jacob) Novel Small Caliber Propellants for Increased Barrel Life and Flash Reduction	20	10:30-10:50
F-3	001. (A. Mukhtar) Development and Study of an AP/HTPB based Composite Solid Propellant Base Bleed Grain for 155 mm Artillery Projectile	20	10:50-11:10
F-4	078. (D. Klinger) Microwave Interferometry for the Measurement of Propellant Regression Rate under Motor-Like Conditions	20	11:10-11:30
grp photo/lunch		80	11:30-12:50
Session Chairs	Dr. Joost van Lingen and Dr. Shingo Date		
G-1	040. (J. Sabatini) Synthesis and Characterization of Furoxan and 1,2,4-Oxadiazole Melt-Castable Explosives	20	12:50-1:10
G-2	007. (D. Piercey) Energetic Materials Based on 1,2,4-triazines and Azasydnones	20	1:10-1:30
G-3	046. (J. Mayne) Continuous Microreactor (RACMR) and ResonantAcoustic® Continuous Crystallizer (RACC)	20	1:30-1:50
G-4	035. (G. Galland) Multi-nozzle Spray Synthesis of Silver Azide Nanoparticles	20	1:50-2:10
G-5	009. (T. Klapotke) TKX-50: A New High Explosive Developed at LMU Munich	20	2:10-2:30
break/posters		20	2:30-2:50
Session Chairs	Dr. Jay Poret and Mr. Matt Puszynski		
H-1	034. (T. Clements) Pyrotechnic and Bullet Material of Construction Cumulative Impact on Tracer Performance	20	2:50-3:10
H-2	030. (D. Perkins) Effect of Percussion Primer Pressure Output on Performance of Pyrotechnic Time Delay Systems	20	3:10-3:30
H-3	055. (S. Hall) A Summary of Pyrotechnic Autoignition Material Development and Evaluation (1996-2021) at Nammo Defense, Inc.	20	3:30-3:50
H-4	015. (A. Shaw) Thermitic Thermodynamics – Characteristics of an Adiabatic Metal-Metal Oxide Reaction Matrix	20	3:50-4:10
H-5	020. (D. Medus) Methodological Approach for the Determination of Initiation Energy and Activation Energy of Pyrotechnic Compositions		4:10-4:30
P	Poster Session (snacks & cash bar)	120	4:30-6:30

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WED	WEDS TALKS	Time (min)	WED (hrs)
Session Chairs	Dr. Magdalena Rusan and Dr. Denis Spitzer		
<b>I-1 INV 3</b>	<b>048. (E. C. Koch) Thermal and Shock Initiated Reactions in Phosphorus(V) Nitride</b>	50	8:00-8:50
I-2	003. (L. Davis) Experimental Investigation into the Safety Distance for Ethane-Oxygen Gas Explosion Applied to Industrial Cleaning	20	8:50-9:10
I-3	066. (D. Charley) The Effect of Particle Size Distribution on Reaction Zone Thickness in Paste Explosives Measured Using a Conical Geometry	20	9:10-9:30
I-4	063. (G. Montoya) Characterization of Sub-mm Scale 2-Pore Defects on Detonation Performance in PBX-9501	20	9:30-9:50
break/posters		30	9:50-10:20
Session Chairs	Sebastian Knapp and Dr. Anthony Shaw		
J-1	081. (J. Lawrence) Influence of Engineered Defects in Polymer Bonded Explosives on Detonation Shape and Performance	20	10:20-10:40
J-2	076. (I. Wilhelm) Phlegmatization of TATP and HMTD with Activated Charcoal for the Use in Explosive Detection Dog Training	20	10:40-11:00
J-3	051. (M. Bohn) Effect of Mechanical Impact on PBX Disk Investigated by DMA	20	11:00-11:20
<b>Bursary</b>	<b>058. (U. Schaller) Investigation of a Butyl-Substituted LT-EIL Based on Dinitramide</b>	20	11:20 - 11:50

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THUR	THURS TALKS	Time (min)	THUR (hrs)
Session Chairs	Dr. Joost van Lingen and Dr. Thomas Klapotke		
<b>K-1 INV 4</b>	<b>XX. (E. Caravaca) Additive Manufacturing of Gun Propulsion Charges Overview</b>	50	8:00-8:50
K-2	033. (D. Kline) Diagnostics Development and Technology Transfer for a High-Quality Direct-Ink-Write Additive Manufacturing Process	20	8:50-9:10
K-3	061. (W. Chapman) An Electrically Conductive, Additively Manufacturable Explosive Composite	20	9:10-9:30
K-4	085. (M. Armstrong) The Effects on Adhesion of Additively Manufactured Solid Rocket Propellant	20	9:30-9:50
break/posters		30	9:50-10:20
Session Chairs	Lauren Morris and Dr. Manfred Bohn		
L-1	052. (R. Vrcelj) Additively Manufactured (3DP) Thermite Structures vs Conventionally Manufactured Equivalents	20	10:40-11:00
L-2	088. (C. Freeman) Development & Analysis of Nano-thermite Formulations and Configuration Factors that Affect Performance	20	11:00-11:20
L-3	024. (J. Moretti) Material Improvement for a Yellow Smoke Training Simulator	20	11:20-11:40
L-4	011. (L. Kotter) The Influence of Solvent Selection on Nitrocellulose-based, Perchlorate-Free Red-and Green-light Illuminates	20	11:40-12:00
lunch		60	12:00-1:00
Session Chairs	Scott Hall and Ken Smit		
M-1	012. (M. Shackleford) Ignitability of Pyrotechnics for Countermeasures	20	1:00-1:20
M-2	025. (K. Uhlenhake) Optical Ignition and Combustion Characterization of Metal Fuel/Fluoropolymer Composites	20	1:20-1:40
M-3	042. (S. Date) Effect of Preparation Conditions on Cyclic Thermal Behavior of some Phase-stabilized Ammonium Nitrate Prepared by Aqueous Solution Method	20	1:40-2:00
M-4	005. (D. Spitzer) From Spray Flash Evaporation to Spray Flash Synthesis: New Opportunities for Defence Materials	20	2:00-2:20
break/posters		20	2:20-2:40
Session Chairs	Dr. Shingo Date and Randy Busky		
N-1	043. (A. Stern) Composition Effects on Iron Carbon Composite Heat Sources	20	2:40-3:00
N-2	068. (T. Kenny) Composite Fuel/Oxidizer Crystals for Energetic Applications	20	3:00-3:20
N-3	026. (L. Glavier) Combustion Model for Thermite Materials Integrating Explicit and Coupled Treatment of Condensed and Gas Phase Kinetics	20	3:20-3:40
N-4	038. (D. Badgular) Thermal Analysis, Sensitivity and Ballistic Properties of Fuel and Novel Oxidizer Based Formulation	20	3:40-4:00
	Business Meeting	60	4:00 - 5:00
	Dinner		

DRAFT SCHEDULE FOR 45th IPS SEMINAR

Friday	FRIDAY TALKS	Time (min)	FRI (hrs)
Session Chairs	Dr. Jesse Sabatini and Dr. Jan Puszynski		
O-1	004. (D. Holley) The Development of Ordnance Materials and Explosives (O.M.E.) Apprenticeships for the UK Explosives Industry		8:00-8:20
O-2	036. (D. Collard) Formulation of Mg/PTFE/PVDF for Fused Filament Fabrication	50	8:20-8:40
O-3	073. (D. Messer) Piezo-Energetic Composite Film Fabrication and Poling Process for Pressure Sensor Applications	20	8:40-9:00
break/posters		30	9:00-9:30
Session Chairs	Dr. Jared Moretti and Dr. Jay Poret		
Q-1	029. (J. Puszynski) Testing and Inspection of Interface Corrosion of the DBX-1 and MIC Primer Components and Ammunition Housing	20	9:30-9:50
Q-2	090. (M. Motyka) Effect of Hardware Design on Stun Grenade Performance Characteristics	20	9:50-10:10
Q-3	013. (T. Shoham) Safety Qualification of a Launch Rocket Motor for a Shoulder – Fired Weapon	20	10:10-10:30
Q-4	027. (M. Bolton) Influence of Mechanical Properties on the Explosiveness of Energetic Materials	20	10:30-10:50
	Closing Remarks	20	10:50-11:10
	Wine & Cheese Party		12:00-2:00

<u>Session</u>	<u>Session Title</u>
A	Fireworks
B	Microwave Effects
C	Propulsion Influence
D	RAM / Material Processing
E	Material Influence
F	Propulsion Measurement and Effects
G	Synthesis
H	Pyrotechnic Systems
I	Explosives
J	Explosive Effects
K	Additive Manufacturing (AM)
L	Pyrotechnic AM and Improved Systems
M	Pyrotechnic Effects
N	Pyrotechnic Exploration
O	Apprentices and Novel Concepts and Processes
P	Poster
Q	Configuration Effects and Evaluation