Tentative Paper Presentations for the 16th ISF

The Call for Papers for the Japan ISF resulted in an overwhelming number abstracts covering a range of very good topics.

The ISF is recognized as the premier forum for the presentation of papers and the discussion of various topics on fireworks and other pyrotechnics associated with entertainment and celebration. These include:

- Chemistry, Physics, and Engineering of Fireworks and associated pyrotechnic devices
- Safety in the Manufacture and Use of Fireworks; Sensitivities and energy output of Fireworks compositions
- New Concepts, Techniques and Products for the Manufacture, Transportation and Storage of Fireworks
- Environmental issues with the use of Fireworks
- Fireworks Regulations, Standards and Codes
- The Art and History of Fireworks and Fireworks as a Cultural Entity

As usual there will be the ISF Program, where presentations will be made on the latest research, technology, and regulations; the Moderated Sessions, where the hottest topics will be discussed amongst the interested ISF registrants; and the Trade Show, which will be populated by vendors, manufacturers and experts who want to showcase their products and services. All registrants to the ISF are welcome to contribute and participate in these areas.

The ISF is typically attended by fireworks professionals from around the world. Attendees represent a broad spectrum of fireworks professionals, from the chemists, to the artists, the choreographers, the distributors, the promoters, and of course, the regulators.

In addition to the above topics, Acting Chairman of the 16th ISF, Dr. Roger L. Schneider, in conjunction with Professor Mitsuru Arai and Emeritus Professor Masamitsu Tamura, have been encouraging topic submissions on the subject of the use of fireworks in Education as indicated in the following.

Japan ISF Theme

Inspired by Professor Mitsuru Arai and with the enthusiastic support of the 16th ISF Honorary Chairman, Emeritus Professor Masamitsu Tamura, the theme for the 16th ISF is, "Fireworks as an Educational Resource." Educational resources are materials which are used for teaching, learning, and even research. Few would disagree that the impressive collection of papers embodied in the past fifteen ISF Proceedings can easily

qualify as an Educational Resource. Rephrasing Professor Arai's recent comments, "It's easy to draw the attention of students to the natural sciences using fireworks, which everybody likes."

Tentative Paper Titles

Although abstracts for nearly 60 papers have been received, many of the papers which were due on January 15, 2017 have not yet been submitted. Authors who have not yet submitted their papers are strongly encouraged to do so immediately. Mandatory reviewing of the papers takes considerable time and effort and the date on which the Proceedings will need to be completed and sent to the printer is approaching. The titles below reflect a broad range of fireworks topics consistent with the scope of the international symposia and several are in keeping with the Educational Resource theme of the 16th ISF.

Japanese fireworks

- History of Fireworks in Japan
- Japanese Fireworks Culture and their New Possibilities
- Japanese Traditional Fireworks
- Tradition of Handholding Fireworks in Arai, Shizuoka
- Assigning Firing System Addresses for Complex Shows using Blueprints - A Distinction between 'Hanabi' and 'Fireworks'
- Celebrating the 200th Anniversary of Hanabi Hidenshū (The Book of Fireworks Secrets) by Rishō, 1817 (the First Book on Recreational Fireworks to be published in Japan)

Accidents and analysis

- Fireworks Accidents in Japan in 2015
- Thirty Seconds or Less: The Ohio River Fireworks Arson Fire of July 3, 1996 in Scottown, Oh USA

Scaling

- High-Speed Visualization Measurement of Senko-Hanabi
- Scaling Law of Senko-Hanabi
- Scale Effect on Combustion of Flash and Non-Flash Compositions

Regulations and standards

- Batch Testing Management Process Improvement by Cloud Computing Systems
- ISO-Standards for Fireworks - Testing and Assessment Criteria
- Revision of the United Nation's Classification Tests of Flash Compositions
- Characterization and Classification of Waste Pyrotechnic Compositions Wetted with Vegetable Oil

- The Outline of the Regulation of Explosives in Japan

Historical trends

- Spain's 2008 Economic Crisis and its ongoing Affects on Fireworks Competitions
- Social and Cultural Aspects of Development of Pyrotechnics in Russia
- The History and Future of Shell Manufacturing in China
- China Fireworks Export, 1995-2015

Education through fireworks

- Japanese Association of Fireworks Appreciators Introduction Supporting Fireworks Culture as a Viewer
- Enjoying Fireworks from Chemical and Educational Viewpoint
- Fireworks Displays as a Narrative Medium: Telling Stories with Pyrotechnics
- Engineering Investigation of "Ryu-Sei" and Educational Applications of Model Rocket
- Real Science or Just Bangs: Cross-Curricular, Inter-Disciplinary, Multimedia Education and Public Engagement
- When Pyrotechny Triggers a Brilliant Career: Amedee François Frezier (1682-1773)
- Teaching Mathematics and Physics by Designing Pyrotechnic Displays

Fireworks chemistry and thermodynamics

- Influences of Chemical Dyes on Laser Ignitionability and Thermal Stability of Ammonium Dinitramide Based Energetic Ionic Liquid (ADN-Based EIL)
- Thermal Study of Ammonium Dinitramide and Acetamide Binary Mixture and their Agarose Mixture
- Comparison of Burning Performances of Some Guanidinium 1,5'-Bis-1H-Tetrazolate Based Mixtures
- Effect of Surface Treatment on Metal Powder Reduce Mechanical Sensitivity of Pyrotechnic Composition

- The Study of the Deterioration on AP/Mg Fireworks in Moisture
- Thermal Properties of Aluminum-Water System Measured with Microcalorimetry
- Study on Blue Colored Flame from Composition Contained Copper Organic Compound
- Investigation on Burning Performances of Bursting Charge
- Thermal Analysis for Chemical Reactions of Senko-Hanabi
- Particle Formation in Fireworks

Aerial Physics

- Recoil and Launch Speed Measurements of Small Fireworks
- Evaluation of Low Altitude Burst
- Tumbling Effects of Cylindrical Shells
- Height Estimates of Aerial Shell Bursts using Angular Measurements Made with Inexpensive Equipment from Three Reference Positions

Organizing Fireworks Competitions

- National Fireworks Competition - Omagari No Hanabi History and Fireworks Judging Criteria
- National Fireworks Competition - Daisen Fireworks Industry Plan Overview and Direction

Research and development stories

- Development of the Olympic Sacred Fire Torch "The Roots Was Tokyo Olympic In 1964"
- Japanese Fireworks for the Olympic/Paralympic Games 2020 Tokyo
- Development of Self Contained Musical Device Shot Tube Battery
- Research on Fireworks Automation and Intelligence

Developments in propellants

- Improvement in Black Powder Lifting
- Zero-Smoke Concussion Device
- Debris-Free Aerial Shell
- High-Performance Propellants (HPP)
- Comparative Study of Burning Rate Correlations for Pyrotechnic Propellants

Fireworks show safety and storage

- Application of Modern Equipment and Arts in Fireworks Display
- Fireworks Display Design from the Ground Up vs. From the Sky Down: Increase Safety and Reduce Setup Time and Costs
- Determination of Safety Distances for Firework Shows: Are "Standard" Values Relevant and Practicable?
- Storing Stars in a Safe Manner: Danger and Risk Reduction
- Storage of Black Powder; Safety Distances in The Netherlands
- Comparative Study on the Safety of Multiple Report Rockets
- Resisting the Impact of an Exploding 6" (150 mm) Dud Aerial Display Shell: Design and Testing of a Protective Roof Canopy