

## PROGRAMME SCHEDULE

### 11<sup>th</sup> May 2018 Friday

08.30 hrs Registration

**Inaugural Function 9.30 – 10.45 hrs at Hall 1**

09:30 hrs **Invocation**

09.32 hrs **Welcome Address** **Dr G Ayyappan**, *Chairman AeSI, TVM*

09.40 hrs **Introducing the theme of the conference and brief about LPSC Pearl jubilee** **Dr V Narayanan**, *Director, LPSC*

09.50 hrs **Presidential Address** **Shri S Somanath**, *Director, VSSC*

10.00 hrs **Lighting the lamp & Inaugural Address** **Dr A E Muthunayagam**, *Founder Director, LPSC*

10.15 hrs **Release of Souvenir & Address** **Dr B N Suresh**, *Chancellor, IIST*

10.20 hrs **Release of Proceedings and Address** **Shri S Pandian**, *Director, IPRC*

10.25 hrs **Felicitation Address** **Dr V K Dadhwal**, *Director, IIST*

10.30 hrs **Felicitation Address** **Shri D Sam Dayala Dev**, *Director, IISU*

10.35 hrs **Vote of Thanks** **Shri G Narayanan**, *Hon. Sec. AeSI Tvm*

10.40 hrs **National Anthem**

10.45 hrs **Exhibition Inauguration** **Dr V Narayanan**, *Director, LPSC*

10.50 hrs **High Tea**

**Keynote Session 11.05 – 12.15 hrs at Hall 1**

11.05 hrs **Introducing the Keynote Speaker** **Shri G Narayanan**, *Alt Chairman, Org Committee ASET 2018*

11.10 hrs **Keynote Lecture -1** **Dr A E Muthunayagam**, *Founder Director, LPSC*

11.40 hrs **Introducing the Keynote Speaker** **Dr A K Anil Kumar**, *Vice Chairman, AeSI Tvm*

11.45 hrs **Keynote Lecture - 2** **Dr B N Suresh**, *Chancellor, IIST*

### Invited Lecture Session 1 12.15 - 13.30 hrs at Hall 1

12:15 hrs	Synchronization transition in a thermo-acoustic system: Temporal and spatiotemporal	Prof R I Sujith, IIT Madras
12:45 hrs	Auto ignition of hydrogen in shear flows	Dr Swetaprovo Chaudhuri, IISc Bangalore
13:15 hrs	Poster session inauguration	
13:30 hrs	Lunch	

### Invited Lecture Session 2 14.15 - 15.15 hrs at Hall 1

14:15 hrs	Aging of Composite Solid Propellants	Prof P A Ramakrishna, IIT Madras
14:45 hrs	Future Trends in Liquid Propulsion	Shri CH Kunhikammaran, LPSC
15:15 hrs	High Tea	

### Technical Session 1 15.30 – 16.45 hrs

#### Session 1A at Hall 1

**Session Chair: Dr A Joseph, DRDO**  
Rapporteur : Smt Rekha K R, LPSC(V)

15.30 hrs	Theoretical and Experimental Studies to Characterize Pressure Spike Phenomena in Solid Motors	Jose Paul, PeddaPeeraiah C, Harikrishnan R, Dileep K N, Jasperlal C, Levin G, VSSC
	A Qualitative process control methodology for the reduction in differential thrust of S-200 pair segments	CH Devi Vara Prasad, J Niroopkumar, Hare Krushna Pathy, Sree Ram Banerjee, A Prasadarao, P. Selva Raj, Ranganathan.V, SDSC
	Optimization of Propellant Burn Rate for Large Solid Rocket Booster	A Natarajan, S Adarsh, Santosh Kumar Dehury, Prasanth C, Jeenu R, Sowmianarayanan L, Jayaprakash J, Jayakumar B, VSSC
	Computational Analysis of a Deflagration to Detonation Transition Device with Different Blockage Ratios	Samuel Luis, Mukit Azad Khan, Vinita M. Samuel, Aldin Justin S, A.N.Subash, Karunya, Coimbatore



**Session 1B at Hall 2**

**Session Chair: Shri Jacob Panicker P C,**  
LPSC(V)  
Rapporteur : Smt Jayashree A, LPSC(V)

15.30 hrs	Replacement Of Hydrazine With A Greener Monopropellant For Future Missions: Development Of A Han Based Monopropellant	Arpita Dash, B. Radhika, R. Narayan
	Layout design and performance evaluation of Bunched Passage Orifice for flow measurement	Perumal Pillai R, Cross Sapna A, Narayanan Appu, Louis Sam Titus L, Pandian S
	Experimental Cold Flow Characterisation Of Pintle Injector	Vikash Kumar, Subhash P.B, Shibu Mathew, Nandakumar K
	Design and Development of a Throttle Flow Control Valve for 800N Throttleable Engine.	Chinmoy Mondal, Benoy Joseph K, Venkittaraman D, Radhakrishnan M. LPSC-V

**Session 1C at Hall 3**

**Session Chair: Shri Alagavelu K,** IPRC  
Rapporteur : Dr. Deependran B,VSSC

15.30 hrs	Estimation of pressurant gas requirement for expulsion of liquid hydrogen in cryogenic upper stage	Rijin.K.V, Anup Antony, M.Xavier, Jose Paul, M S Suresh, LPSCV
	Methodology for estimation of gas consumption from onboard pressure vessels	Saurabh K Joy, Rijin.K.V, M.Xavier, Jose Paul, LPSCV
	Parametric study of liquid oxygen sub-cooling for use as cryogenic upper stage propellant	Rijin.K.V, Ravisankar K C, M.Xavier, JosePaul, M S Suresh, LPSCV
	Bayesian Network Based Fault Detection for Liquid Propellant Rocket Engine CE-20	Muna Kumar Singh, Rameez Khazim, NallaPerumal, and D P Sudhakar,
	Development of a capacitance based liquid level sensor for cryogenic liquids	Jobin Thomas, Rijo Jacob Thomas, Mathew Skaria, Shafi K A, Vivek G A, Kasturirengan S, Pradip Panchal and Vipul L. Tanna

**Session 1D at Hall 4**

**Session Chair: Shri Narayanan R,**LPSC(B)  
Rapporteur : Shri. Subratachakrabarti, LPSC(V)

15.30 hrs	Propulsion System In Chandrayaan-2 And Beyond	P. Venkata Reddy, R.Shashishekar, H.S. Venkatesh , D. Gangadhar, LPSC B
	Spacecraft Engines For Interplanetary Missions	Dr. P.Arunkumar, C. Rajeev Senan, B. Ajith, Aishwarya Shankhdhar, Ebin Thomas, LPSCV

	<b>Design of a control scheme for spacecraft driven by low thrust EP systems</b>	<i>Payal Agarwal, Chinna Ponnu V, Dr. N.K. Philip, ISAC</i>
	<b>Experimental Evaluation of Throttling Characteristics of Spacecraft Thruster using Effervescent Technique</b>	<i>C. Singh, Ramesh S, A. David Dason&amp;Alaguvelu.K, IPRC</i>
	<b>Lunar Soil Jet Erosion Studies</b>	<i>Birendra Oraon, Sourav Dutta, T. Jeyabalan S. Ramesh, David Dason, K. Alaguvelu, S. Pandian, IPRC</i>
<b>16.45 hrs</b>	<b>Leaving to City</b>	
<b>18.00 hrs</b>	<b>Cultural Programme</b>	
<b>19.30 hrs</b>	<b>Banquet Dinner at Residency Tower</b>	

## 12<sup>th</sup> May 2018 Saturday

### Technical Session-2 09.00 – 10.30 hrs

#### Session 2A at Hall 1

**Session Chair: Prof R I Sujith, IITM**

*Rapporteur : Shri. J C Pisharady, LPSC(V)*

<b>09.00 hrs</b>	<b>Age Effect of Copper Chromite Catalysed Propellant on Ballistics of Solid Motors</b>	<i>Kiran Pinumalla, Prasanth C, Jeenu R and Jayaprakash J, VSSC</i>
	<b>Burn-Rate Modifiers in Composite Solid Propellants: A Review</b>	<i>O. Sai Siddhartha, A.S. Ramateja, P. Kanakaraju, SDSC</i>
	<b>Experimental Evaluation of Flow Separation in High Area Ratio Nozzles</b>	<i>Shashank Nitundil, Nandan Kumar Vidyarthi, Haison Harold, Sridharan P, Levin G, VSSC</i>
	<b>Numerical Validation on Supersonic Under-Expanded and Over-Expanded Free Jets</b>	<i>Steny Ann Sabu, Ankur Nagpal, M M Patil, VSSC</i>

#### Session 2B at Hall 2

**Session Chair: Shri M S Suresh, LPSC(V)**

*Rapporteur : Dr. John Tharakan, LPSC(V)*

<b>09.00 hrs</b>	<b>Modeling and Simulation of Film Cooling in DLR-P6.1 Subscale Rocket Engine</b>	<i>Arun M., Amith Raj R., Jose Prakash M.</i>
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**Laser diagnostic techniques for the internal flow characterization of fuel injectors**

*Kakkuth Puthenveetil Shanmugas, R. Manikandan, Satyanarayanan R. Chakravarthy*

**Mechanism of spray formation in doublet and triplet injectors**

*S Vishnu, C K Muthukumar, Subhash PB, Shibu Mathew , K Rebi Roy*

**Control of Cavity Flow by Steady Base Injection**

*Md Nawaz Nizam, Aravind Vaidyanathan, Desikan SLN*

**Effect Of Blockage Factor On Liquid-Liquid Cross- Flow Pintle Injector Spray Characteristics**

*Ajith Kumar S, Vinil Kumar R R, Aravind Vaidyanathan, Ninish S, John Tharakan, T*

### **Session 2C at Hall 3**

**Session Chair: Shri Asir Packiaraj, IPRC**  
**Rapporteur : Dr Deepak kumar Agarwal, LPSC**

**Calorimetric Emissivity Measurement Setup Using Liquid Nitrogen: Limitations in Obtaining Emissivity Values at Cryogenic Temperatures Down to 77 K**

*Aljeesh A, Shafi K A, Rijo Jacob Thomas, Mathew Skaria, Vasudevan K, Kasturi Rengan S, Upendra Behera, Samiran Mukerjee, Ranjana Gangradey*

**Theoretical and experimental analysis of fluid dynamics in source changeover for cryogenic engine testing**

*Ganesh Paramasivan, A.S.Ramasubramanian, Santhanam R, Ganapathy Subramaniam V, Narayanan Appu and Alaguvelu K, IPRC*

**Investigation of Depletion Sensor based Propellant Utilization System for C25 STAGE**

*T Devakumar, Manu Varrier, Bijukumar K.S,N. Jayan, M.S. Suresh, LPSCV*

**A Novel Concept Of Modular Configuration Of Cryogenic Upper Stage With Closed Inter Tank Structure**

*Sunil M, RejiJoseph, S Jagannathan, Jose Paul, LPSC V*

**Amenities for higher structural mass fraction in cryogenic upper stages: A study of feasible options for future**

*Unni Raveendran, Dr. RS Praveen, Jayaprakash J , B. Jayakumar, VSSC*

### **Session 2D at Hall 4**

**Session Chair: Shri Shibu Mathew, LPSC(V)**

**Rapporteur : Smt Abarna V,LPSC(B)**

**09.00 hrs**

**Hall Effect Thruster for ISRO Geostationary Satellites**

*Harshit Gole, Anooja Sankar, Karthikeyan.N, Raji Gerooge, Dr. Umesh Kadhane, K.M. Shanbhogue, Vijayan Nandalan, M.G. James, LPSC V*

**Development and qualification of a 100 mN Hydrazine arcjet thruster**

*K. Krishnaraj, Vinay Unnikrishnan, N. Sreenivas, L. Aravindakshan Pillai, VSSC*

	<b>The Future Of Inter Planetary Exploration Satellites - Ion Propulsion Implications</b>	<i>Karan Ganesh, Ranjeet Kumar, NICHE</i>
	<b>MEMS Valve for Electric propulsion system</b>	<i>Ashwini Jambhalikar, M S Giridhar, J John, G. Supriya, R Islam, M Vishwanatha, LEOS</i>
	<b>Recovery and Reuse of Spent Rocket Stages</b>	<i>Aneesh Rajan, Bejoy John, Kiran Mohan, Sabapathy T M, LPSC V</i>
	<b>A method for determination of thermal conductivity of thin samples using IR lamp heating facility</b>	<i>Fazil Mohammad, K Kannan, KPSubhajayan, SamikJash, G Levin, VSSC</i>

**10.30 hrs High Tea**

**Invited Lecture Session 3 10.45 - 13.15 hrs at Hall 1**

<b>10.45 hrs</b>	<b>Recent trends on laminar burning velocity of fuel-oxidizer mixtures</b>	<b>Dr Sudarshan Kumar, IIT Bombay</b>
<b>11.15 hrs</b>	<b>Turbomachinery for Aerospace: current trends and the future</b>	<b>Dr A M Pradeep, IITB</b>
<b>11.45 hrs</b>	<b>Industry Presentation 1</b>	
<b>12.15 hrs</b>	<b>Current trends and future directions in solid propulsion</b>	<b>Shri V Eswaran, VSSC</b>
<b>12.45 hrs</b>	<b>Ramjet Propulsion Systems in Defence, Indian Context</b>	<b>Dr Subhash Chandran, DRDL</b>
<b>13.15 hrs</b>	<b>Lunch</b>	

**Technical Session 3 14.00 – 15.00 hrs**

**Session 3A at Hall 1**

**Session Chair: Dr Ashok V, VSSC**  
*Rapporteur : Dr. Nandakumar, LPSC(V)*

<b>14.00 hrs</b>	<b>Numerical Simulations Of Flow-field In A Duct With Finite Rate Chemistry</b>	<i>P. Anoop, R. C. Mehta, VSSC</i>
	<b>Quantification of Hydroxyl (OH) radicals in Laminar Flat Flame and Inverse Diffusion Flame of Coaxial injector</b>	<i>G. Kashyapa Maharshi, CK. Muthukumaran, Vikash Kumar, Shibu Mathew, Dr K. Nandakumar, Aravind Vaidyanathan, LPSCV</i>
	<b>Preliminary Combustion Modeling&amp; Dynamics Study in Liquid Rocket Engines: An Overview</b>	<i>Abhishek Sharma, Deepak Kumar Agarwal, J. C. Pisharady, S. Sunil Kumar, LPSC V</i>
	<b>Six Equation Compressible Multi-Fluid Simulation Of Granular Propellant Combustion</b>	<i>Annie Rose Elizabeth, IITM</i>



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**Session 3B at Hall 1****Session Chair: Dr Lazar T****Chitilappilly, VSSC**

Rapporteur : Shri Mohan kumar L, VSSC

14.00 hrs

**Numerical Studies On Thrust Augmentation In Nuclear Thermal Rocket By Secondary Injection**

R. V. Aswathy, Gokul Anugrah, M. Deepu and T. John Tharakan, LPSC-V

**Design, Development and Performance Evaluation of an Acrylic based Hybrid Rocket Motor**

Hrisheekesh K, Sujithkumar R, Aravindakshan Pillai L, G. Levin, VSSC

**Propulsion characteristics of an integrated air breathing scramjet vehicle concept**

Amit Kumar Singh, Dipankar Das, K. Manokaran, G. Vidya, V. Ashok, VSSC

**Study of Impinging Liquid in Scramjet Engine using Deep Learning Techniques**

Prajith Kumar KP, Bhartendu Thakur, Ajith Kumar S, Aravind Vaidyanathan, IIST

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**Session 3C at Hall 2****Session Chair: Shri Hutton, VSSC**

Rapporteur : Dr. Bijukumar K S, LPSC(V)

14.00 hrs

**Cold Flow Mixing Enhancement Using Impinging Jets**

Ayaz Ahmed, Aravind Vaidyanathan, K. Srinivasan

**Investigation of the effect of Varying Relative Waviness on Microchannel Heat Transfer**

Angshuman Bhardwaj, Jophy Peter, Deepak Kumar Agarwal, Shine S R, IIST

**VIKAS Engine Health Monitoring using Machine Learning -**

Manusubramanian S, Vishnu Suresh Nair, Aneesh Rajan, Sajeev P, S Indu Kumar, LPSCV

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**Session 3D at Hall 4****Session Chair: Shri Jayaprakash J, VSSC**

Rapporteur: Shri. Paul Murugan VSSC

14.00 hrs

**Preliminary system analysis and feasibility studies on in-situ propellant processing from the Martian Atmosphere -**

Ganesh Paramasivan, Vignesh G, Narayanan Appu &amp; Alaguvelu K, IPRC

**Experimental Studies on Ignition & Propulsion Characteristics of Oxygen-Methane Propellants**

C. Singh, Ganesh P, Ramesh S, A. David Dason &amp; Alaguvelu K, IPRC

**An Optimized Variable Ullage Pressure Control System for a Heavy Lift Launch Vehicle**

Sourabh Karmarkar, Kailas Kuhite, V. Nandakumar, S. Sunil, G. Vijayakumar, LPSCV

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### *Programmes at Hall 1*

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15.00 hrs

**Industry Presentation-2**

15.30 hrs

**Valedictory function**

15.30 hrs

**Welcome Address**

*Shri G Narayanan, Alt Chairman, Org Committee ASET 2018*

15.35 hrs

**Panel discussion**

15.55 hrs

**Prize distribution**

16.10 hrs

**Feedback**

16.25 hrs

**Vote of Thanks**

*Dr A K Anil Kumar, Vice Chairman, AeSI Tvm*

16.30 hrs

**National Anthem**

16.32 hrs

**High Tea**

17.00 hrs

**Departure**

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