

# National Aerospace propulsion Conference (NAPC-2018)

December 17<sup>th</sup>-19<sup>th</sup> 2018

Department of Aerospace Engineering, IIT Kharagpur

Date: 17.12.2018

**Breakfast:** 8:00 to 9:00 AM

**Registration:** 8:00 AM-9:30AM

Registration Venue: Vikramshila Foyer, IIT Kharagpur

**Inaugural Function:** 9:30 AM to 10:00 AM

Key Note Address by Chief guest : **Shri M. Z. Siddique, Director, GTRE, Bangalore:** 10:00 AM to 10:45 AM

Venue: Kalidas Auditorium

**Tea break:** 10:45 AM to 11:15 AM

Day – 1						Dec 17 <sup>th</sup> ,2018
Venue	Maitrayee Hall		V3 Hall		V4 Hall	
1115-1145	Invited Talk 1 - Dr. V. Narayanan, Director, LPSC, Trivandrum					
	Paper ID	Paper Title and Author	Paper ID	Paper Title and Author	Paper ID	Paper Title and Author
S1,S2,S3	Theme: Space - Propulsion		Theme: Gas Turbine Engine Health Monitoring, Performance & Starting		Theme: Structures & Materials	
1145-1205	120	<b>Title:</b> A Scaling Method for Investigation of Thermo-Acoustic Characteristics of Oxygen-Hydrogen Combustor <b>Authors:</b> Ganesh P, Karthikeyanathan S, Narayanan Appu, Alaguvelu K , Mahendragiri. Sujithkumar R	153	<b>Title:</b> Challenges in Engine Health Monitoring Instrumentation during Developmental Testing of Gas Turbine Engines <b>Authors:</b> A. N. Vishwanatha Rao, T. N. Satish, Anagha S. Nambiar, G. Uma, M. Umamathy, Soumendu Jana, V P S Naidu	52	<b>Title:</b> Aramid Fiber Composite Layers for Fan Blade Containment in a Gas Turbine System : Some Experimental Studies <b>Authors:</b> M R Bhat, Dineshkumar Harur Sampath, Sumit Khatri, Umesh K
1205-1225	25	<b>Title:</b> Numerical Modeling and Parametric Study of Low Power Argon Arcjet Thrusters <b>Authors:</b> Nandyala Hari Prasad, Amit Kumar, Deepak Akhare, T Jayachandran	152	<b>Title:</b> Rotor Blade Vibration Measurement on Aero Gas Turbine Engines <b>Authors:</b> T. Devi Priya, Sunil Kumar, Devendra Pratap, S. Shylaja, T.N. Satish, A.N. Vishwanatha Rao	41	<b>Title:</b> Methods of Simulation of Bird Strikes on Critical Aero Structures with Some Test Cases & Conceptualization of an Alternative Technique for the High Speed Measurement <b>Authors:</b> Rajappa Banger, Praveen Kumar, Rajesh Sundrani, Anil Mahobia, Niranjan Sarangi, P Ramesh
1225-1245	39	<b>Title:</b> Passive Oscillation Suppression in L/D=3 Cavity Using Subcavity in Supersonic Flow <b>Authors:</b> Chintan Panigrahi, Aravind Vaidyanathan, Manoj T. Nair	117	<b>Title:</b> Performance Trends of a Generic Small Gas Turbine Engine <b>Authors:</b> Balaji Sankar, Tahzeeb Hassan Danish	158	<b>Title:</b> Investigation of Residual Stresses in Cold Expansion Process on an Additively Manufactured Component <b>Authors:</b> Koundinya Kuchimanchi, Santhosh Kumar T, Senthil Kumar R
1245-1305	5	<b>Title:</b> Near Field Effects of Micro-Vortex Generators in Supersonic Intake <b>Authors:</b> Humrutha G., K. P. Sinhamahapatra, Mrinal Kaushik	84	<b>Title:</b> In-depth Analysis of the Starting Process of Gas Turbine Engines <b>Authors:</b> Jagadish Babu C, Mathews P Samuel ,Antonio Davis	15	<b>Title:</b> Structural Health Assessment of Gas Turbine Engine Carcass <b>Authors:</b> Dilip Kumar, Sanjay G Barad
1305-1400	<b>Lunch</b>					

Venue	Maitrayee Hall		V3 Hall		V4 Hall	
1400-1430	Invited Talk 2 - Prof. A. M. Pradeep, IIT Bombay					
S4,S5,S6	Theme: Gas Turbines - Fans & Compressors		Theme: Gas Turbines - Afterburners & Nozzles		Theme: Measurement Techniques	
1430-1450	129	<b>Title:</b> Aeroelastic Instability Evaluation of Transonic Compressor at Design and Off-Design Conditions <b>Authors:</b> Kirubakaran P, Naveen Kumar N R, Sankar Kumar Jeyaraman, Ajay Pratap	104	<b>Title:</b> Damping of Afterburner Screech Combustion Instabilities Employing Versatile Helmholtz Resonator Arrays <b>Authors:</b> J. Bimal Patel, Shambhoo, C. Rajashekar, K. Ashirvadam, A. P. Haran, J. J. Isaac	3	<b>Title:</b> Experimental Investigation of Infrared Thermal Signature of Exhaust Emission of Diesel Engines <b>Authors:</b> Ajay Jain ,Ravindra Brammajyosula
1450-1510	60	<b>Title:</b> Flow Behaviour of a Single Stage Transonic Axial Flow Compressor Subjected to Different Axial Locations of Low Porosity Bend Skewed Casing Treatment <b>Authors:</b> Bhaumik B Panchal, Dilipkumar Bhanudasji Alone, Harish S Choksi	105	<b>Title:</b> Experimental Studies on the Thermo-Acoustics of Afterburner Screech Combustion Instabilities in a Model Afterburner Test Rig <b>Authors:</b> C. Rajashekar, Shambhoo, H. S. Raghukumar, G. Sriram, S. Chenthil Kumar, G. Udaya Sankara Athith, Vijayasankaran K, Rajeshwari Natarajan, A. R. Jeyaseelan, K. Ashirvadam , J. J. Isaac	12	<b>Title:</b> An Experimental Investigation on the Performance of An Acoustic Pump Employing Dynamic Passive Valves <b>Authors:</b> Akash B, Sonu K Thomas, T. M. Muruganandam
1510-1530	61	<b>Title:</b> Effect of Backward Lean on the Overall Performance of a Transonic Axial Flow Compressor. <b>Authors:</b> Akash M Shobhavathy M. T., R. Ajith Kumar	109	<b>Title:</b> Triggering of Flow Instabilities by Simulated Sub / Super Critical Rayleigh Heat Addition in an Aero-Gas Turbine Afterburner <b>Authors:</b> P Sreenath, Shambhoo, H. S. Raghukumar, C. Rajashekar, K. Ashirvadam, A. Davis, J J Isaac	122	<b>Title:</b> Generation of Homogeneous Isotropic Turbulence Inside Fan Stirred Vessel <b>Authors:</b> Aswathi Krishna, TM Raja, Chockalingam Prathap
1530-1550	<b>Tea break</b>					
1550-1620	Invited Talk 3 - Dr. Debasis Chakraborty, DRDL, Hyderabad					
S7,S8,S9	Theme: Missiles - Propulsion		Theme: Gas Turbines - Combustors		Theme: Space - Nozzles	
1620-1640	144	<b>Title:</b> Effects of Iron Particles on Boron-HTPB Based Solid Fuel for SFDR Applications Using Rapid Screening Instrument <b>Authors:</b> Syed Alay Hashim, Minhazul Islam, Srinibas Karmakar, Arnab Roy	91	<b>Title:</b> Combustion Instability Triggered Flame-Flash Back in a Backward Facing Step Combustor <b>Authors:</b> Pankaj Pancharia, Vikram Ramanan, S. R. Chakravarthy	82	<b>Title:</b> Experimental Analysis of the Effect of Passive Flow Control Devices in Nozzle Performance Indicators <b>Authors:</b> Deepika Baskar, Senthil Kumar U, Kathiravan Balusamy, Muruganandam T.M
1640-1700	21	<b>Title:</b> Numerical Investigation of Various Fuel Injection Configurations using a Strut Flame Holder in a Scramjet Combustor <b>Authors:</b> Nikhil Hemanth, Amit Thakur, Abhay M Hervatte, Shreyas K V	22	<b>Title:</b> Liquid Fuel Combustion with Extremely Diluted Oxidizer in High Swirl Flows at High Pressure <b>Authors:</b> Subrat Garnayak, Sukanta K Dash, Mahendra R Vanteru	54	<b>Title:</b> Computational Ananalysis of Flow Separation in TLC Nozzles under High Altitude Conditions <b>Authors:</b> Kiran Kumar, Abhilash Suryan

Day 2

Dec 18<sup>th</sup>, 2018

Breakfast: 8:00 to 9:00 AM

Venue	Maitrayee Hall		V3 Hall		V4 Hall	
0900-0930	Invited Talk 4 - Dr. R. K. Mishra, CEMILAC, Bangalore					
	Paper ID	Paper Title and Author	Paper ID	Paper Title and Author	Paper ID	Paper Title and Author
S10,S11,S12	Theme: Gas Turbines - Combustors		Theme: CFD Studies		Theme: Propulsion Systems, Power Generation Systems & UAVs	
0930-0950	119	<b>Title:</b> Investigation of Highly Swirl Stabilized Spray Combustion Using Low-Cost Computational Techniques <b>Authors:</b> Ashok Kumar, Roshan Sah, Srinibas Karmakar, Arnab Roy, Mahendra R Vanteru, Avijit Saha	4	<b>Title:</b> Effect of Change in Eccentricity of Elliptic Aerodisk Attached to Blunt Body at Mach 6 <b>Authors:</b> G. S. Srivatsa - RV College of Engineering, Bangalore. Mahesh N, Prakash S Kulkarni,	33	<b>Title:</b> Development of Thermoelectric Module Based Portable Power Generation System with Different Cold Side Heat Dissipation <b>Authors:</b> Aravind B, Deepak Kumar Saini, Robin John Varghese, Sudarshan Kumar
0950-1010	126	<b>Title:</b> Influence of Secondary Fuel Injection on Emissions and Combustion Efficiency <b>Authors:</b> Parneeth Lokini, Dinesh Roshan, Abhijit Kushari	92	<b>Title:</b> Aerodynamic Characteristics of Supersonic Turbulent Flow over Cavities <b>Authors:</b> Sanchari Ghosh, Roshan Sah, Sandeep Saha	58	<b>Title:</b> Design Point Simulation and Performance Investigation of Turbo-electric Distributed Propulsion System <b>Authors:</b> Danda Jaganmohana Rao, Suresh Sampath, Panogotis Lashkaridis, Tashie
1010-1030	30	<b>Title:</b> Effect of Fuel Injection Angle on the Flame Stabilization and Emission Characteristics of a Non-Premixed, Model GT Burner <b>Authors:</b> Prakash R S, Santhosh K S, Rajesh Sadanandan	48	<b>Title:</b> Pressure Boundary Treatment of Subsonic Microchannel Gas Flow Using the DSMC Method <b>Authors:</b> Arjun Raveendran K, S Asok Kumar	154	<b>Title:</b> A Practical Approach to Enhance the Flight Endurance of a Fixed Wing UAV <b>Authors:</b> Rajesh M, T. Virupaksha, L. N. Raghavendra .
1030-1100	<i>Tea break</i>					

## Day 2 (Continued)

Dec 18<sup>th</sup>, 2018

Venue	Maitrayee Hall		V3 Hall		V4 Hall	
1100-1130	Invited Talk 5 - Prof. A. Lukin, Western-Caucasus Research Center, Russian Federation					
S13,S14,S15	Theme: Space - Propulsion		Theme: Gas Turbines - Turbines		Theme: Combustion - Jets & Flames	
1130-1150	138	<b>Title:</b> Study of Effects of Catalytic Nanoscale Additives on Solid Propellants Combustion by Means of the Data Science Methods <b>Authors:</b> Victor S. Abrukov, Darya A. Anufrieva, Alexander N. Lukin, Charlie Oommen, Nichith Chandrasekaran, Rajaghatta S Bharath, V Sanalkumar	8	<b>Title:</b> Unsteady Flow Analysis of a Highly Loaded High Pressure Turbine of a Gas Turbine Engine <b>Authors:</b> Vishal Tandon, S. N. Dileep Bushan Reddy, Chikaballapura. R. D. Bharathan, S. V. Ramanamurthy	1	<b>Title:</b> Effects of Inlet Parameters on Flame Propagation in Microscale Tubes. <b>Authors:</b> Raksha P Mani, Mohammad Zuber, B. Aravind, Sudarshan Kumar,
1150-1210	76	<b>Title:</b> The catalytic effect of Ultra-Fine Iron Oxide (UFIO) in Micro and Nano Aluminized Fuel-Rich Propellants <b>Authors:</b> R. Murugesan, S. R. Chakravarthy, Ganesan S	139	<b>Title:</b> Design and Analysis of Axial Flow Turbine using Three Different Vortex Laws <b>Authors:</b> Prathapanayaka Rajeevalochanam, S N Agnimitra Sunkara, Anubhuti Sharma, Manish Kumar, Jaydip Pokiya Mansukhbhai, Sachin Verma	123	<b>Title:</b> Dynamic Characteristics of Inverse Diffusion Flame <b>Authors:</b> Arijit Bhattacharya, Somnath De, Raunak Basak, Shanu Pratap, Achintya Mukhopadhyay, Swarnendu Sen
1210-1230	17	<b>Title:</b> Experimental Investigation of Cavity Flows with Rear Corner and Face Modifications <b>Authors:</b> Talluri Vamsi Krishna, Priyank Kumar S.L.N.Desikan Sudip Das	90	<b>Title:</b> Attenuation of Flow Separation in NACA 8410 Turbine Cascade using Gurney Flaps <b>Authors:</b> Nilavarasan T, Ganapati N Joshi, Sunil Chandel	81	<b>Title:</b> Influence of Inner Lip-Thickness and Velocity Ratio in a Coaxial Jet <b>Authors:</b> Prithviraj Chidambararaj, Kathiravan Balusamy, Senthilkumar C., Muruganandam T.M.
1230-1250	63	<b>Title:</b> Effect of Swirl and Wall Heat Transfer on the Performance of Arcjet Thrusters Using Numerical Modeling <b>Authors:</b> Deepak Akhare, Hari Prasad Nandyala, Amit Kumar, T Jayachandran	34	<b>Title:</b> A Computational Study on the Interaction of Purge Flow with an Upstream Wake in a Linear Turbine Cascade <b>Authors:</b> Sushanlal Babu, Anish S	95	<b>Title:</b> Acoustic Excitation of Self-Excited Elliptic Jet Diffusion Flame <b>Authors:</b> Priy Devvrat Singh, B. R. Vinoth, S. Mahesh
1250-1310	150	<b>Title:</b> Effect of Activated Charcoal on the Performance of Hybrid Rocket Motor <b>Authors:</b> Nitesh Kumar, Mengu Dinesh, Rajiv Kumar	2	<b>Title:</b> Computational Investigations of Varying Solidity LP Turbine Cascade with Gurney Flap for Low Reynolds Numbers <b>Authors:</b> Srivatsa G S, Gajanan Tatpatti	94	<b>Title:</b> Experimental Study on Flame Propagation of Laser Induced Combustion of Methane-Air Mixture in a Constant Volume Chamber <b>Authors:</b> Chidanand Koshti, Dr. Milankumar R Nandgaonkar
1310-1400	<b>Lunch</b>					

**Day 2 (Continued)**

**Dec 18<sup>th</sup> ,2018**

Venue		Maitrayee Hall		V3 Hall		V4 Hall	
1400-1430		Invited Talk 6 - Dr. Deepak Sharma, TSI					
S16,S17,S18		Theme: Spray Diagnostics		Theme: CFD Studies		Theme: Structures & Materials	
1430-1450	110	<b>Title:</b> Development of Test Facilities for Characterizing Gas Turbine Premixers at Realistic Engine Conditions <b>Authors:</b> Deepti Bhandari, Rahul Raj, S. R. Chakravarthy	124	<b>Title:</b> Numerical Investigation on Entrainment of Lubrication Oil Into Still Air <b>Authors:</b> Vimala Narayanan, Ritesh Gaur, D Kishore Prasad, Swarna Rekha P, Ashik Rauther	44	<b>Title:</b> Experimental Evaluation of Elastic Ring Squeeze Film Dampers for Small Gas Turbine Engine <b>Authors:</b> Thennavarajan S, Sadanand Kulkarni, Manikandan L P, Soumendu Jana, Ajit Kumar, Iqbal Momin	
1450-1510	147	<b>Title:</b> Measurements of Droplet Velocity Fields in Sprays from Liquid Jets Injected in High Speed Crossflows Using PIV <b>Authors:</b> Venkat S Iyengar, Sathiyamoorthy K, Srinivas J, Pratheesh Kumar P, Manjunath P	142	<b>Title:</b> Axial Load Estimation Over Impeller of Centrifugal Pump for Aero Engines <b>Authors:</b> Yogesh T V, Navin Anand, Poornima N, Vimala Narayanan, Kishore Prasad D	45	<b>Title:</b> Effecting Critical Frequency Shift Using Active Magnetic Thrust Bearings <b>Authors:</b> Balaji Sankar, Brijeshkumar J Shah, Soumendu Jana, Pramod Manjunath, Hemanth Kumar A,A S Sekhar	
1510-1530	156	<b>Title:</b> Spray Characterisitics of a Multi-Hole 'Y' Type Internal Mixed Twin Fluid Injector <b>Authors:</b> Deepak Kumar, Abhijit Kushari, Pramod Kumar, Praveen Kumar Singh, Sriganesh G.	68	<b>Title:</b> Computational Investigation of Calibration Characteristics of a Five Hole Probe <b>Authors:</b> Rahul Venkatesan, N Sitaram, Madhunika Madhunika, Sumanth Siddartha and Jigme Tsering	64	<b>Title:</b> Demonstration of Magnetic Bearing in High-Speed Application <b>Authors:</b> Brijeshkumar Shah, Balaji Sankar, Santhosh Kumar, Soumendu Jana, R K Giridhar	
1530-1550		<i>Tea break</i>					
1550-1620		Invited Talk 7 - Dr. Asim Ghosal, GE Aviation					
S19,S20,S21		Theme: Gas Turbines - Turbines		Theme: CFD Studies		Theme: Space - Nozzles	
1620-1640	26	<b>Title:</b> Numerical Investigation of Three-Dimensional Separation in Twisted Turbine Blade: The Influence of Endwall Boundary Layer State <b>Authors:</b> Gaurav Saxena, Arun Saha, Ritesh Gaur	70	<b>Title:</b> Numerical Study on Aerodynamic Design and Flow Characterization of Straight through Labyrinth Seals <b>Authors:</b> Kishor Kumar, Giridhar Babu Y, S. Satish Kumar, Ashfaqe A Khan, Venkat S Iyenger	83	<b>Title:</b> Numerical Investigation of Internal Shocks in Over Expanded Nozzles Equipped with Micro Vortex Generators and Cavities <b>Authors:</b> Deepika Baskar, Harikrishnan T, Kathiravan Balusamy, Muruganandam T.M.	
1640-1700	71	<b>Title:</b> Influence of Endwall Boundary Layers and Wake Mixing in a Turbine Rotor Cascade <b>Authors:</b> R Senthil Kumaran, PP Sharath	100	<b>Title:</b> Investigation of Flow Physics of Serpentine High Aspect Ratio Nozzle for Stealth Aircraft Application <b>Authors:</b> Saravanan K, Ganesan S, Ashirvadam K	55	<b>Title:</b> Numerical Study of the Altitude Compensation in Planar Expansion Deflection Nozzle <b>Authors:</b> Ajith D, Abhilash Suryan	
17:00-17:30		Panel Discussions					

## Breakfast: 8:00 to 9:00 AM

Venue		Maitrayee Hall		V3 Hall		V4 Hall		
0900-0930		Invited Talk 8 - Dr. Vinod Kalyanpur, Samsung C&T, Korea						
	Paper ID	Paper Title and Author		Paper ID	Paper Title and Author		Paper ID	Paper Title and Author
S22,S23,S24		<b>Theme: Measurement Techniques - Flow Visualization</b>		<b>Theme: Gas Turbines - Fans &amp; Compressors</b>		<b>Theme: Combustion - Jets &amp; Flames</b>		
0930-0950	27	<b>Title:</b> Alternate Schlieren Techniques in High Speed Flow Visualization <b>Authors:</b> Vaisakh S and T M Muruganandam		86	<b>Title:</b> Sensitivity Analysis of Weight Coefficients used in Multi Objective Optimization in Genetic Algorithm Method for Axial Flow Compressor Design <b>Authors:</b> Nitin Bhaurao Balsaraf, Kishore Kumar S		99	<b>Title:</b> Characteristic Study of Stationary Flames using Flat Flame Burner <b>Authors:</b> Meghasham Khandige, Shrey Waghmare, Prathap C., S. R. Chakravarthy, Karthikeyan Rajasekar, Aritra Chakraborty
0950-1010	101	<b>Title:</b> Development of a Retro-Reflective Screen-Based Large-Field High-Speed Shadowgraph Flow Visualization Technique and its Application to a Hydrogen-Fueled Valveless Pulsejet Engine <b>Authors:</b> C. Rajashekar, Shambhoo, H. S. Raghukumar, Rajeshwari Natarajan, A. R. Jeyaseelan, J. J. Isaac		62	<b>Title:</b> Understanding of an Effect of Plenum Volume of a Low Porosity Bend Skewed Casing Treatment on the Performance of Single Stage Transonic Axial Flow Compressor <b>Authors:</b> Darshan Pitroda - M S University of Baroda. Dilipkumar Bhanudasji Alone, Harish S Choksi		145	<b>Title:</b> Experimental Study on Premixed LPG-Air Flame Propagation in a Rectangular Channel <b>Authors:</b> Siba Prasad Choudhury, Ratan Joarder
1010-1030	107	<b>Title:</b> High-Speed Shadowgraph Flow Visualization Studies on the Mechanism of the Onset of Screech and its Attenuation in a Model Afterburner Test Rig <b>Authors:</b> C. Rajashekar, Shambhoo, H. S. Raghukumar, G. Sriram, S. Chenthil Kumar, Udaya Sankara Athith G, Vijayasankaran K, K Ashirvadam, J. J. Isaac		56	<b>Title:</b> Active Tip Clearance Control of a Military Gas Turbine Engine Compressor - A Feasibility Study <b>Authors:</b> Dhruva Biswas		42	<b>Title:</b> Numerical Investigation of a Bluff Body Stabilized Diffusion Flame with Modal Decomposition <b>Authors:</b> Sombuddha Bagchi, Sourav Sarkar, Uddalok Sen, Ashoke De, Achintya Mukhopadhyay, Swarnendu Sen
1030-1100	<b>Tea break</b>							
1100-1130	Invited Talk 9 - Prof. BVSSS Prasad, IITM							
S25,S26,S27		<b>Theme: Heat Transfer Studies</b>		<b>Theme: Gas Turbines - Combustors</b>		<b>Theme: Structures &amp; Materials</b>		
1130-1150	157	<b>Title:</b> Combustor Tile Hot Spot Region Cooling Using Locally Varying Thermal Barrier Coating <b>Authors:</b> Kiran Kumar Nagabandi, Arun Kumar Pujari		132	<b>Title:</b> Investigation of Reverse Flow Slinger Combustor with Jet-A Fuel <b>Authors:</b> Pooja Nema, Abhishek Dubey, Abhijit Kushari		74	<b>Title:</b> Finite Element FCG Simulations of Turbine Disk <b>Authors:</b> K. Gopala Krishna, K. Yaswanth, D. Chakraborty, K. S. R. K. Murthy, B. V. A. Patnaik

**Day 3 (Continued)**

**Dec 19<sup>th</sup> ,2018**

Venue	Maitrayee Hall		V3 Hall	V4 Hall		
1150-1210	103	<p><b>Title:</b> Investigations of Heat-Transfer Rate and Surface Pressure Distribution over a Sharp Cone Model at Hypersonic Mach Number  <b>Authors:</b> Saiprakash M, Senthilkumar C. Kadam Sunil G, Singh Prakash Rampratap, Shanmugam V, Balu G</p>	118	<p><b>Title:</b> Combustion Characteristics of Potential Alternative Aviation Fuels and Jet A-1 in a Swirl-Stabilized Combustor  <b>Authors:</b> Manish Kumar, Avijit Saha, Prabhu Deva, Srinibas Karmakar, V. Mahendra Reddy</p>	130	<p><b>Title:</b> Design Improvement of Centrifugal Compressor for Turbocharger Application  <b>Authors:</b> Kirubakaran P, Kishore Kumar C, Vidyadheesh Pandurangi, Kishore Prasad D</p>
1210-1230	112	<p><b>Title:</b> Heat Transfer Characteristics of Single Row of Three Dimensional Wall Jets  <b>Authors:</b> Sangamesh C Godi, Ananda Prasanna, Arvind Pattamatta, Chakravarthy Balaji</p>	29	<p><b>Title:</b> Effect of Confinement on the Flame Structure of a Non-Premixed Swirl Burner  <b>Authors:</b> Rajesh Sadanandan, Aritra Chakraborty, S. R. Chakravarthy</p>	96	<p><b>Title:</b> Structural Design and FEM Analysis of High Aspect Ratio Nozzle (Non Axisymmetric Nozzle) for Stealth Aircraft Application  <b>Authors:</b> Saravanan K, Ashirvadam K, Muthuveerappan N</p>
1230-1250	50	<p><b>Title:</b> Investigation for the Improvement of Film Cooling Effectiveness of Effusion Cooling Holes  <b>Authors:</b> Batchu Suresh, Resham D Khade, Kesavan V, Kishore Prasad D</p>	24	<p><b>Title:</b> Reduction of Emissions by Steam Dilution in High Swirl Liquid Fuel Combustion  <b>Authors:</b> Subhankar Mohapatra, Sukanta K Dash, Mahendra R Vanteru</p>	67	<p><b>Title:</b> Hot Corrosion Behavior of C263 Alloy  <b>Authors:</b> Krishnan Kumar, Neeta Paulose, D C Fernando, N Kapilan</p>
1250-1310	59	<p><b>Title:</b> Experimental Analysis on Forced Convection Heat Transfer In Porous Medium Over A Heated Flat Plate  <b>Authors:</b> Akhil S Hari, S Asok Kumar</p>	141	<p><b>Title:</b> Effect of Redistribution of Combustion Air on Performance of Upward Swirl Can-Type Gas Turbine Combustor  <b>Authors:</b> Parag Rajpara, Rupesh Shah, Jyotirmay Banerjee</p>	11	<p><b>Title:</b> Modelling and Analysis of Gas Turbine Blades Made of Nickel-Based Superalloys  <b>Authors:</b> Subbarao Rayapati, Nityanando Mahato</p>
1310-1400	<b>Lunch</b>					
S28,S29,S30	<b>Theme: Measurement Techniques - Pressure</b>		`	<b>Theme: Space - Propulsion</b>		
1400-1420	9	<p><b>Title:</b> Development of Time Efficient Multihole Pressure Probe Calibration Facility  <b>Authors:</b> Ajey Singh, Akchhay Kumar, Gaurav Tayal, Chetan Mistry</p>	7	<p><b>Title:</b> A Reconfigurable Approach for Design &amp; Development of Supervisory Digital Controller and Data Acquisition System to Test the Aero Engine Fuel Control System (EFCS)  <b>Authors:</b> Prakash Kumar Yadu, B.A. Manjunatha, L. Jagadeeswar Rao, Chennu Naresh</p>	125	<p><b>Title:</b> Analytically Modelling a Dual Mode SCRamjet with Fuel Flow Rate as the Controlling Parameter  <b>Authors:</b> Sushmitha Janakiram, Muruganandam T M</p>
1420-1440	43	<p><b>Title:</b> In-Cylinder Combustion Pressure Measurement and Analysis on an Indigenous Wankel Rotary Combustion Engine  <b>Authors:</b> Monickavasagom Pillai K, Steve Mithran A J, Janaki Rami Reddy M, Satish Kumar K, Umesh Kumar Sinha</p>	77	<p><b>Title:</b> Strategic Quality Management of Aero Gas Turbine Engines, Applying Functional Resonance Analysis Method  <b>Authors:</b> Johny Thomas, Antonio Davis, Mathews P. Samuel</p>	149	<p><b>Title:</b> Studies on the Effect of Protrusion in Liquefying and Non-Liquefying Hybrid Rocket Fuels  <b>Authors:</b> Saideep Singh Rajput, Mengu Dinesh, Rajiv Kumar</p>
1440-1510	<b>Valedictory function</b>					
1510-1530	<b>Tea break</b>					