



# 8<sup>th</sup> International Conference on Product Lifecycle Modeling, Simulation & Synthesis PLMSS - 2021

Day 1 : 17 December 2021, Friday

Audi 1

**Inauguration Session**

09.25	Video Prelude to the Conference
09.30 - 09.35	Invocation
09.35 - 09.40	Welcome Address - <b>Shri. M Mohan</b> , Dy. Director, VSSC/Chairman Organising Committee, PLMSS-2021
09.40 - 09.50	Presidential Address- <b>Shri. S Somanath</b> , Director, VSSC
09.50 - 10.10	Inauguration & Address: <b>Dr. K Sivan</b> , Chairman, ISRO
10.10 - 10.15	Release of Souvenir - <b>Dr. V Narayanan</b> , Director, LPSC
10.15 - 10.30	Felicitaton - <b>Dr. V Narayanan</b> , Director, LPSC
	Felicitaton - <b>Shri A Rajarajan</b> , Director, SDSC SHAR
	Felicitaton - <b>Dr.D Sam Dayala Dev</b> , Director, IISU
	Felicitaton - <b>Prof. Gurumoorthy B</b> ,Co Chair, PLMSS Trust
10.30 - 11.00	Keynote Address - <b>Dr. Tessy Thomas</b> , Director General, Aeronautical Systems, DRDO
11.00 - 11.05	Vote of Thanks - <b>Shri Victor Joseph T</b> , Group Director, PPEG VSSC/ Organising Secretary, PLMSS-2021
11.15 - 12.00	Invited Talk- <b>Dr. S Unnikrishnan Nair</b> , Director, HSFC
12.00-12.45	Invited Talk - <b>Shri B H Laxmesh</b> , Head Aerospace & Defence, L & T
<b>Conference Presentation Session 1 (CP-1)</b> Materials & Manufacturing process development & simulations Session Chair: <b>Shri Saratchandran S, Former Dy. Director, VSSC</b> Rapporteur: <b>Smt Nagapriya S, VSSC</b>	
14:15-14:30	Fatigue Tests under Simulated Autofrettage and Proof Pressure Cycles for Commercially Pure Titanium (CP-70) in Forged and Annealed Dome
14:30-14:45	Analysis of surface strain distribution over the biaxial stretch-formed and deep-drawn cups of Cu-Cr-Zr-Ti alloy thin sheet
14:45-15:00	Serrated plastic deformation and multi-necking behaviour of 16Cr-6Ni Austenitic-Martensitic stainless steel at 20K
15:00-15:15	Sector Weld Repair Study on Ti6Al4V alloy in EBW for COPV
15:15-15:30	Development of an Automated Crawler Device for Composite Sandwich Panel Inspection using an Instrumented Coin Tap equipment
15:30-15:45	Experimental and Numerical Analysis of Resistance Spot Welded Joint Strength On 15CDV6 steel
15:45-16:00	Design & Simulation of Manufacturing Processes & Tools for Productionising Double Walled Nozzle Extension of Cryogenic Engine (CE-20)



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16:00-16:15	Design and Fabrication of Low Noise Pressure Regulating Valve for the Trisonic Wind Tunnel
16:15-16:30	Simulation of transient thermal profile of cryogenic engine on Cu-Cr-Zr-Ti alloy and evaluation of mechanical properties
16:30-16:45	Design and manufacturing of a spherical AA6061-T6 pressure vessel liner for aerospace applications
16:45-17:00	Structural integrity assessments of Ni-Cr-Mo-V Steel
17:00-17:15	Design and fabrication of cylindrical shell for flow conditioning in wind tunnels



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Audi 2	
<b>Conference Presentation Session 2 (CP-2)</b> <b>Space System Design</b> Session Chair: <b>Dr. Kurien Issac K</b> , IIST Rapporteur: <b>Shri Viswanath V</b> , LPSC	
14:15-14:30	Design and Development of thrust transfer structure-NCA of LVM3-X/CARE Mission of ISRO
14:30-14:45	Space Systems Mechanical Testing
14:45-15:00	Development of Composites Overwrapped Pressure Vessels (COPVs) for Aerospace applications: PLM perspectives
15:00-15:15	Enhanced Smart Quality Management System to implement Agile based In-built Quality Product Life Cycle Management of Space Systems
15:15-15:30	Design and Development of Turbine Exhaust Gas Expansion Nozzle for a Cryogenic Engine Gas Generator
15:30-15:45	Thermal Design aspects of Electronics Packaging for Airborne applications
15:45-16:00	Load Estimation Cycle of a Launch Vehicle from Initial Design Phase to Launch
16:00-16:15	Design and Assessment of Composite probe for soil surface temperature measurement
16:15-16:30	Design options for a metallic tori-spherical nozzle closure for Semi-Cryo engine
16:30-16:45	Design and prototyping of a variable diameter wheel for exploration vehicles
16:45-17:00	A Pragmatic approach in an indirect health prediction of critical launch vehicle components through dynamic response analysis
17:00-17:15	A tapered common bulkhead dome for the cryogenic stage of an Indian launch Vehicle



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Audi 3	
Technical Brief Session 1 (TB-1) Session Chair: Prof. N Siva Shanmugam, NIT Trichy Rapporteur: Dr. Anilkumar V, VSSC	
14:15-14:23	Additive Manufacturing process development for realization of Fule Pump Impeller of LOX hudrocarbon based rocket engine using 17-4 PH material
14:23-14:31	Challenges and Lessons Learnt in Additive Manufacturing Technology for Realization of Wind Tunnel Models for Combat Aircraft
14:31-14:39	Wire arc Additive Manufacturing of Near-net-shape Ti6Al4V Parts for Aerospace Applications using GTAW
14:39-14:47	Development of Hardware for Biology in Spaceflight:Exploring the Prospects of Design for Additive Manufacturing (DfAM)
14:47-14:55	Did we "build" it correctly?- Exploring automation possibilities of on-orbit inspection for in-space additive manufacturing
14:55-15:03	Topology Optimization of Additively Fabricated VTM brackets using SS316L
15:03-15:11	A Study on Methodology of Topology Optimization for Air Brone Structures Using Finite Element Analysis Simulation
15:11-15:18	Performance optimization and production of U-Fitting Bracket using LMD Technology
15:18-15:26	Prediction of Fastener Nut Factor Value using Machine Learning Technique
15:26-15:34	A new approach to Electrical System Design for Aero and Space platforms
15:34-15:42	Role of Digital Risk Twin in Space Systems
15:42-15:50	Effect of Roller Burnishing on Fatigue Life of Alloy Steel Fasteners for Landing Gear Applications
15:50-15:58	Gating design for Complex Casting using ProCAST and its validation
15:58-16:06	Design, fabrication, Installation and testing of slender air storage vessels
16:06-16:14	Design of Forging process for Manufacturing Inconel 718 Hemispherical Forgings for Oxygen Storage by Modelling and Simulation
16:14-16:22	Transforming manufacturing work instruction in Digital way-Efficiently
16:22-16:30	Optimization of process parameters for Thermal Protection System (TPS) application on structures of launch vehicles to increase quality with productivity using CNC manipulator
16:30-16:38	Development of Processing Technique to Eliminate Reheat Cracking of XH67MBTIO alloy
16:38-16:46	Eco-friendly anodization process for the corrosion protection of aircraft Al alloys: Pilot plant establishment and demonstration of process technology
16:46-16:54	Thermal and Structural Modelling of Maraging Steel Welding



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Day 2 : 18 December 2021, Saturday

Audi 1

09.00-09.45	Invited Talk- <b>Dr. Sameer Prabhur</b> , Worldwide Industry Marketing Leader, Mathwork
09.45-10.30	Invited Talk - <b>Shri Yannick Wittner</b> , A & D Industry Global Market Development Leader, Dassault Systems
<b>Conference Presentation Session 3 (CP-3)</b> <b>Additive Manufacturing</b> Session Chair: <b>Shri. Roy M Cherian</b> , Former Asso. Director, VSSC Rapporteur: <b>Shri. Sandeep Verma</b> , VSSC	
10:50-11:05	Integrated Numerical Modeling and Machine Learning Approaches to Predict Melt Pool Dimensions during Deposition of SS316L Single Tracks using Laser Powder Bed Fusion Process
11:05-11:20	Repair of Aerospace Component using Additive Manufacturing
11:20-11:35	Optimization of Post-Processing Heat Treatment Cycle for L-PBF Processed Al-4.8Mg-0.3Sc Alloy
11:35-11:50	Effect of post processing and comparative study of Indigenous and Imported IN 718 alloy powders for additive manufacturing
11:50-12:05	Parametric Investigation of LPBF of IN625 at Poor Overlap Index (30%) and at Higher Layer Thickness (100µm)
12:05-12:20	Characterisation of Laser Powder Bed Fusion AM Processed AlSi10Mg Components for Liquid Engines
12:20-12:35	Understanding the Effect of Interlayer Delay on Hastelloy-X Wall Structures built using Laser Directed Energy Deposition based Additive Manufacturing
12:35-12:50	Prediction of IN617 deposit track features in Directed Energy Deposition using Machine Learning
12:50-13:05	Study on Geometrical Features of FDM Components Based on Integrated Material-Process Design Using Multi Criteria Decision Making Method
13:05-13:20	Characterisation of L-PBF 3D Printed High Strength Aluminium Alloy Al4.8Mg0.3Sc Bracket for Aerospace Application
<b>Concluding Function</b>	
16.00-16.05	Welcome
16.05 - 16.15	Gist of Conference/Proceedings - <b>Dr. V Ashok</b> , Dy. Director, VSSC/Chairman, Technical Committee, PLMSS-2021
16.15-17.00	Panel Discussion - <b>Product Lifecycle: Space System Perspective</b> Panelist <b>Dr. D. Sam Dayala Dev</b> , Director, IISU <b>Dr. Rajalakshmi Menon</b> , DRDO <b>Dr. R K Ramanathan</b> , PLMSS Trust <b>Dr. V. Ashok</b> , VSSC <b>Shri. B H Laxmesh</b> , L & T <b>Dr. Sunil Kumar S</b> , LPSC <b>Shri. M K Mishra</b> , HAL Moderator: <b>Dr. SVS Narayana Murty</b> , LPSC
17.00 - 17.05	Announcement of Prizes - <b>Shri P S Subramanyam</b> , Former Director & PGD (CA), ADA
17.05 - 17.10	Vote of Thanks



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Audi 2	
<b>Conference Presentation Session 4 (CP-4)</b> <b>PLM: Aerospace &amp; Aircraft applications</b> Session Chair: <b>Dr. Reena Sharma Former Proj. Director, CABS, DRDO</b> Rapporteur: <b>Shri. A E Perumal, VSSC</b>	
10:50-11:05	Role of SLM in Modern Military Aircraft Development Program
11:05-11:20	A Life Cycle Perspective on the Development of a Test Rig for ISRO Smart Limb
11:20-11:35	Possibilities and Challenges to migrate PLM on Cloud in R&D
11:35-11:50	Product Life Cycle Modelling in Launch Vehicle Avionics Components
11:50-12:05	PLM and Process Automation Tools for Critical Systems of Launch Vehicles
12:05-12:20	Reliability Centered Product and Process Development in PLM by Real Time Integration of Various Business Tools using RPA
12:20-12:35	Requirements Capture and Schedule Management for a Transport Aircraft Using a PLM Tool
12:35-12:50	Product Life Cycle of an Ordnance Device-A Case study
<b>Conference Presentation Session 5 (CP-5)</b> <b>Aerodynamic Mission, Design, Modeling &amp; Simulations</b> Session Chair: <b>Shri. Sowmianarayanan, Asso. Proj. Director, VSSC</b> Rapporteur: <b>Dr. Desikan SLN, VSSC</b>	
13:50-14:05	Aerodynamic Designing of Crew Escape System for Gaganyaan
14:05-14:20	Soft computing Approach for Dynamic Calibration of a Stress-wave Force Balance
14:20-14:35	VR flight simulator with cognitive load estimation feature
14:35-14:50	Effectiveness of ADS-B integration in Airborne Surveillance Mission
14:50-15:05	Ultrathin Wideband Metamaterial based Microwave Absorber
15:05-15:20	Study of Controlled Fragmentation of Cylindrical Warhead Casing
15:20-15:35	Hot Shut Off Valves for Hypersonic Wind Tunnel



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Audi 3	
<b>Technical Brief Session 2 (TB-2)</b> Session Chair: <b>Shri. Suresh M S</b> Asso. Director, LPSC Rapporteur: <b>Smt. Pooja Dutt, VSSC</b>	
10:50-10:58	Airborne Sensor Simulators: A cost effective solution for Training and System Evaluation
10:58-11:06	Detection of lightning-prone zones of fighter aircraft utilizing CAD data by Rolling Sphere Method
11:06-11:14	Preliminary Studies on Design and Modeling of Advanced Ceramic Heaters for Space Applications
11:14-11:22	A Review Paper on Rocket Engine Nozzle Cooling
11:22-11:30	Enhancing Space System Design and Modelling
11:30-11:38	Development of Sealing configuration between Crew Escape Motor and Shroud of Crew Escape System(CES)
11:38-11:46	A Comprehensive PLM approach for Aerospace Fasteners used in Launch Vehicles of ISRO
11:46-11:54	Concept of a Specialised Project Manager Module- " Project HandBook"
11:54-12:02	Content Management using PLM Active Workspace in Aero engine Applications at GTRE
12:02-12:10	i3PLM-A futuristic Product Life cycle Management framework with interprteability, interoperability, and interactive capabilities
12:10-12:18	Implementation of a Simple Production Management Tool for Avionics Systems.
12:18-12:26	Simulation studies on the interaction of cutting edges and machining induced defects in CFRP composites
12:26-12:34	Functional Hazard and Fault Tree analysis for a Transport Aircraft
12:34-12:42	Role of Non-Destructive Tsting in the Product Life Cycle of Space Compoiste Structures-Current and Future Perspectives
12:34-12:42	Wire Arc Additive Manufacturing of SS 321 for Aerospace Applications to Bear Static and Cyclic Loads
12:42-12:50	Tailoring the microstructural characteristics and mechanical properties of Austenitic Stainless Steel 308L overlays deposited using Gas Metal Arc Welding Process
12:50-12:58	3D Printing/Additive Manufacturing Digital Tansformation with the EOS's Digital Tools (Software) & Training
<b>Conference Presentation Session 6 (CP-6)</b> <b>AI, ML, Industry 4.0, CAD/CAM/CAE</b> Session Chair: <b>Shri. Alex A Dy.</b> Director, LPSC Rapporteur: <b>Shri. Mankatiya Vittal Naik,</b> LPSC	
13:50-14:05	Novel Equipping Fixture Design for Composite Aircraft Parts Bonded Assembly to Enhance Productivity using 3D CAD
14:05-14:20	Practice of Agile Scrum in Product Development



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14:20-14:35	Artificial Intelligence as a Force Multiplier in Airborne EO/IR System
14:35-14:50	Systems and Methods for automation of layout generation for automotive transmission graphs
14:50-15:05	Generation of Parametric Modeler for CAD automation using Knowledge Based Engineering (KBE) Tools available in 3D Experience (CATIA) software
15:05-15:20	Implementation of Digital Manufacturing for Aircraft Development-A Case Study
15:20-15:35	Finite Element Analysis of Stiffness of Bio-inspired Two-hierarchical (2H) Stairwise Staggered Composite with Regular Staggered Composite (SR) as Platelets