9th International Conference on
Product Lifecycle Modeling, Simulation and Synthesis

Product Lifecycle Management in Smart, Connected and Sustainable Ecosystem

PLMSS 2023

December 6-8, 2023. Bengaluru

PROGRAM BOOKLET

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9th International Conference on Product Lifecycle Modeling, Simulation and Synthesis

TIME	PROGRAM DESCRIPTION		
9:00 AM - 9:30 AM	Registration		
9:30 AM - 11:00 AM	Conference Inauguration		
11:00 AM - 11:30 AM	Tea Break		
11:30 AM - 12:10 PM	KEYNOTE LECTURE 1 **ADVANCEMENTS IN AI AND ITS APPLICATION TO ENGINEERING AND MANUFACTURING** Prof. Asim Tewari Center for Machine Intelligence and Data Science (C-MInDS) Department of Mechanical Engineering, IIT Bombay		
12:10 PM - 12:50 PM	KEYNOTE LECTURE 2 **THE DIGITAL APERTURE – A GLOBAL OPPORTUNITY** Dr. Robert J Rencher Associate Technical Fellow, Boeing Company		
1:10 PM - 2:00 PM	Lunch		
2:00 PM - 2:40 PM	KEYNOTE LECTURE 3 **DFMA - DESIGN FOR MANUFACTURING AND ASSEMBLY "BUILD RIGHT, BUILD FAST "** Shri V S Vasudev Chief Designer (Structural Design), Aircraft Research & Development Center, HAL		
2:40 PM - 3:00 PM	Corporate Track: SIEMENS (Platinum Sponsor) **DIGITAL THREAD – DIGITALLY CONNECTING THE ENTERPRISE** Mr. Gururaj Bengeri Director - Digital Transformation Consulting,SIEMENS		
3:00 PM - 3:40 PM	KEYNOTE LECTURE 4 **Shri Sridhar Dharmarajan** Executive Vice President & Managing Director, Hexagon Manufacturing Intelligence Division		
3:40 PM - 4:00 PM	Tea Break		
SESSION I	**TRACK 1**	**TRACK 2**	**TRACK 3**
Theme/Time	System Modeling & Simulation	Aircraft Systems - Mechanical	PLM/Applications/ Digital Thread
4:00 PM - 4:30 PM	INVITED TALK – 1 **MBSE–for Sustainable PLM** Mr. Krishna Chaitanya Research Group Head SIEMENS Technology Division	INVITED TALK – 2 **Digital Solutions And Digital Transformations For Aerospace** Megha Navalgund GE, India	INVITED TALK – 3 **Engineering Design Transformation** Ms. Ranjani Rajanikanth Senior Director - Digital Strategy & Transformation Honeywell
4:30 PM - 4:45 PM	CAT-02.6 **Simplifying Parametric Analysis using Variant Modeling.** Arulmani Gnanasekaran and Ruturaj Digraskar Bluekei solutions Pvt. Ltd.	CAT-04.5 **Design, Modelling and Simulation of Deflector Plate for Flow Distribution In Combined Heat Exchanger for A Typical Fighter Aircraft.** Ramana Murthy K V, Sankaraiah Mada and Mahesh Babu S ADA, Bangalore	CAT-09.5 **Enhancing PLM Concepts for Effective Integration of Design and Manufacturing in the Development of Composite Airframe** Senthilnathan K, Giridharan A Rajesh Kumar S, Sunny Darshan K and Paranthaman N NAL, Bangalore

SESSION I	TRACK 1	TRACK 2	TRACK 3
Theme/Time	System Modeling & Simulation	Aircraft Systems - Mechanical	PLM/Applications/ Digital Thread
4:45 PM - 5:00 PM	CAT-02.8 **Graph based Smart Neural Recommendation Mechanism (SNeRM) for system modelling.** Basil Cardoz, Samir Mishra and Ganesh Seshadri Siemens Technology and Services Private Limited, Bangalore	CAT-04.3 **Oleo Pneumatic Shock Absorbers for Nose Wheel Landing Gear.** Ms. Yadavalli Dhanya Shraavya, Dr. Ajay Misra and Mr. Ravindra Shende DIAT	CAT-09.4 **An Efficient Change Management Processes for the enterprises to realize Design Anywhere, Manufacture Anywhere.** Sibichakaravarthy S K and Bala Sabari D Thinkinnov Solution Technologies Private Limited
5:00 PM - 5:15 PM	CAT-02.9 **Numerical Simulation of Test Fixture And Experimental Verification by Full Scale Slosh & Vibration Test of Aircraft External Fuel Tank.** Nisar Ali and Dr Prabha Srinivasan ADA, Bangalore	CAT-04.1 **Environmental Control System flow optimization for fuel tank pressurisation during deck Take-off of single engine jet aircraft** Rahul Agrawal and Sankaraiah Mada ADA, Bangalore	CAT-09.7 **Product Life Cycle Process & Management for Human Spaceflight Missions** Aditya Karan, Gaurav Yadav, Surapaneni Kakati and Gowrishankara CK URSC-ISRO, Bangalore
5:00 PM - 5:15 PM	CAT-02.11 **Enhancing Requirements Engineering: Syntactical Writing and Data Modelling for Improved Aerospace Systems Development.** Tanmay Dube, Suvigya Gupta, Sandesh Puranik and Dhirendra Singh BlueKei Solutions Pvt Ltd	CAT-04.9 **Detailed Paper - Tool Costing, the unpredictable challenge?** Himanshu Arora, Manoj Tiwari and Rajesh Shankar SIEMENS	CAT-09.6 **Implementation of Process Track Sheet in PLM** Ankush Budihal, Jintu K S, Sumeet Patil, Gokul Krishna and Golla Ramanjulu ADA, Bangalore

PLMSS-2023 Conference Schedule
DAY 2 - 7th DEC 2023

TIME	PROGRAM DESCRIPTION AND VENUE
9:30 AM - 10:10 AM	KEYNOTE LECTURE 5 **SYSTEM ENGINEERING AND DIGITAL TWIN** Dr. Abhay A Pashilkar Director, NAL
10:10 AM - 10:30 AM	Corporate Track:Dassault Systemes (Platinum Sponsor) **VIRTUAL TWIN SOLUTTION EXPERIENCE FOR AEROSPACE & DEFENCE** Mr. Praveen Mysore Technical Director,Dassault Systemes India Pvt Ltd
10:30 AM - 11:10 AM	KEYNOTE LECTURE 6 **COMPLEX AIRBORNE SYSTEM OF SYSTEMS** Dr. K Rajalakshmi Menon, FNAE Distinguished Scientist & Director CABS, DRDO
11:10 AM - 11:30 AM	Tea Break

SESSION II	TRACK 4	TRACK 5	TRACK 6
Theme/Time	Manufacturing, Product Testing & Inspection	Quality - Reliability	New Technologies in Product Development/I 4.0
11:30 AM - 12:00 PM	INVITED TALK – 4 **Ultra-high Temperature Characterization Challenges & Opportunities Aviation Product Lifecycle** Dr P B N Prasad, Dr. A. S. Ahlawat Maapan Lab	INVITED TALK – 5 **Combat Aircraft - Operations & Sustainability** Air Cmde P K Choudhary VSM (Retd)	INVITED TALK – 6 **Autonomous Navigation Of Drones & Its Application In Defence** Dr. Bipin Kumar Tata Elxsi
12:00 PM - 12:15 PM	CAT-05.3 **Prove-out of Jigless Assembly for future Combat Aircraft Programme** Saikat Bhowmik, Balaji H and Srinivasa Rao L ADA, Bangalore	CAT-06.1 **Functional Hazard and Fault Tree Analysis for the Flight Control System of a Transport Aircraft** Ganesh Madhuranath and Achuthan Pankaj	CAT-08.4 **Overcoming Ideation Bottlenecks through Conversational AI** B. Sankar and Dibakar Sen IISC, Bangalore
12:15 PM - 12:30 PM	CAT-05.2 **Comparison of inspection between LASER based scanner and CMM for MBD aircraft structural parts** Sunil Soni, Prem Raj V and Shivakumar B Hosakeri HAL, Bangalore	CAT-06.2 **Fatigue Reliability Analysis of an Aircraft Component-A Statistical Approach** Prasan Kumar A, Dr. Odelu Ojjela and Mr. Chetan Thakur DIAT	CAT-08.1 **Opportunities with Generative AI to address challenges of Aviation Industry** Krishnasagar Kulkarni, Venugopal R, Devaraja Holla Vaderahobli and Dr. Ravi Kumar G.V.V Infosys Ltd.
12:30 PM - 12:45 PM	CAT-05.4 **Design And Development of an Airborne Cold Plate Through Vacuum Brazing Technique** Annapurna Sogunuru, Vikram P, Priyank Prasad, Ilavarasu Sivagnanam and Gracy Philips CABS	CAT-06.3 **Development of Novel Techniques for Sensing Propellant Depletion of Low Thrust Engines** Govardhana Reddy Chintala, Mansoor K and Sheethal Antony VSSC	CAT-08.2 **Test-Time Augmentation for Improving the Accuracy of Deep Learning based Defect Inspection Models** Ninad Kulkarni, Apoorv Jain, Aravindh Kalaiyarasan, Srigandhan S.V. and Ujwal Bhate Infosys Ltd.
12:45 PM - 1:00 PM	CAT-05.5 **Generative Design for Additive Manufacturing of Sounding Rocket Crown: A Case Study** Aakash Preetham Vadlakunta, V Aravind, V S Sooraj, Ayyappan G, Apurba Roy and V Anil Kumar IIST	CAT-06.4 **Implementation of Quality Management System through PLM framework** Vijaya Kumar Shanmugam, Kannagi Ad, Srinivasan G, Palanivel G and Balamurugan V DRDO	CAT-08.3 **Integration of Blockchain Technology with PLM** Gokul Krishna, Ankush Budihal and Golla Ramanjulu ADA, Bangalore
1:00 PM - 1:45 PM	Lunch		

SESSION III	TRACK 7	TRACK 8	TRACK 9
Theme/Time	Product Design - CAD /MBD	System Modeling & Simulation	Product Operations, Support and Sustenance
1:45 PM - 2:15 PM	INVITED TALK – 7 **The Plm Perspective For The Next Generation Combat Aircraft Programme** Mr. Krishna Rajendra Neeli Offg. Project Director (Advanced Medium Combat Aircraft) ADA	INVITED TALK – 8 **Virtual Verification & Validation – Impact of Simulation on Safety, Efficiency and Innovation** Mr. Raphael Van der Vorst Systems Engineering Technical Consultant SIEMENS	INVITED TALK – 9 **Digital Twin Framework For Health Management Of Aircraft Systems In Product Lifecycle** Dr V Sudhakar Group Director (HUMS) ADA
2:15 PM - 2:30 PM	CAT-01.5 **Model Based Definition (MBD) implementation in PLM Framework for development of Combat Aircraft** Illuru Aravinda Kumar, Hari Soni, K. Karthiga, Tarun K Chaturvedi and V. Vani ADA, Bangalore	CAT-02.2 **Implementation of an MPC-based Closed Loop Trajectory Planning and Trajectory Tracking Approach in a Discrete Virtual Environment** Shantanu Shukla, Varun Katre, Balasubramanian Subramani Sellamani, Rajvardhan Pattanashetti, Natarajasundaram and Rajasekhar Roopavatharam IIT, Bombay	CAT-11.4 **Development of a Data Analysis Tool for Flight Strain Predictions** Veluri S Chinmayi, Srinivas Vankudothu, Ankur Agrawal, Thamotharan T and Sudhakar V PES University, Bengaluru
2:30 PM - 2:45 PM	CAT-01.1 **Implementation of Model Based Definition for a Fighter Aircraft** Prem Raj V, Kiran Nellore and Vasudev VS HAL, Bengaluru	CAT-02.3 **Vibration Analysis of Aircraft Pipelines to Generate Inputs for Clearance Checks in DMU** Hemalatha E, Gourav Dutta and Mohamed Nishad ADA, Bengaluru	CAT-11.2 **Availability enhancement of aircraft using Deep Learning techniques for unscheduled maintenance** Antony GratusVaruvel, Akhrsh J Pillai, Rammohan V Khaki and Dr Rajendra Prasath R ADA, Bengaluru
2:45 PM - 3:00 PM	CAT-01.4 **Computer-Aided Assembly Sequence Generation for a Hierarchical Product Structure of Aircraft Assemblies** Aniruddha Rajendra Magdum, Dr. R. K. Satpathy, Ravi Prasad S and Sai Kishore K DIAT, Pune	CAT-02.4 **Effective Model-Based Systems Engineering Framework for Logic Intensive Applications: Digital Anti-skid Brake Management System Case Study** Manju Nanda, Alexander Kale, Viswanathan Shanmugham, ShamsundarDhage, Shrilatha Acharya and Giresh Kumar Singh NAL, Bengaluru	CAT-11.1 **Technical Publications for Indigenous Fighter Aircraft Programme – An SLM Driven Approach** Murali Krishna Teki, Krishna Bhat and Satish Kumar ADA, Bengaluru
3:00 PM - 3:15 PM	CAT-01.3 **Increasing Efficiency of Aircraft Ground Handling Operations** Indira Narayanaswamy and Ajith CB	CAT-02.7 **Assessment of Bird Impact and Foreign Object Damage on Infrared Search & Track System and Airframe of Modern Combat Aircraft** Anil Kumar Gupta and Prabha Srinivasan ADA, Bengaluru	CAT-11.3 **Time Series Data Compression Using Piecewise Linear Model For IVHM Applications** Srinivas Vankudothu and Sudhakar Veluri ADA, Bengaluru

SESSION III	TRACK 7	TRACK 8	TRACK 9
Theme/Time	Product Design - CAD /MBD	System Modeling & Simulation	Product Operations, Support and Sustenance
3:15 PM - 3:30 PM	CAT-01.2 **Optimization of INS/GPS Harmonization on LCA Mk1 aircraft** Md Madar Khan and Gurusewak Singh ADA, Bengaluru	CAT-02.13 **Full scale fatigue testing of a fighter aircraft by Flight-by-flight methodology** Agam Sharan and Deepa James ADA, Bengaluru	CAT-11.5 **Digital Framework for Indigenous Fighter Aircraft Development & Sustenance** Krishna Bhat, Satish Kumar and Murali Krishna Teki ADA, Bengaluru
3:30 PM - 3:48 PM	Tea Break		
3:48 PM to 4:00 PM	Corporate Track – ANSYS (DiamondSponsor)		
4:00 PM – 5:30 PM	Panel Discussion – Advanced Manufacturing for Defence Mr K Ravi HAL LCA-TD, Mr Laxmesh L&T, Mr Sudhir Kamath MTRDC, Dr Ravishankar NAL & Mr. Anil K Sogi, GM (EW&A), BEL		

PLMSS-2023 Conference Schedule
DAY 3 - 8th DEC 2023

TIME	PROGRAM DESCRIPTION AND VENUE		
9:30 AM - 10:10 AM	KEYNOTE LECTURE 7 **DIGITAL ENABLEMENT OF THE DESIGN, BUILD & MAINTENANCE OF A SUSTAINABLE INDIGENOUS AIRCRAFT PROGRAM** Mr. Peter Bilello President & CEO, CIMdata		
10:10 AM - 10:25 AM	Corporate Track – CADOPT Technologies Pvt Ltd (Diamond Sponsor) **EMERGING PLM TRENDS FOR THE A & D DIGITAL THREAD CONTINUUM** Ms Renuka Kamath Principal Solutions Consultant, PTC		
10:25 AM - 11:05 AM	KEYNOTE LECTURE 8 **DIGITAL SOLUTIONS FOR AEROSPACE INDUSTRY** Mr. Kamlesh Kumar Gupta Head – Technical Services & Skill Development - Tata Advanced Systems Ltd		
11:05 AM - 11:30 AM	Tea Break		
SESSION IV	TRACK 10	TRACK 11	TRACK 12
Theme/Time	Aircraft Systems - Mechanical	Product Visualisation	Digital Twin
11:30 AM - 12:00PM	INVITED TALK – 10 **PLM For Aircraft Critical Systems Qualification & Certification** Mr. Shyam Karigiri Managing Director Moog India Technology Center	INVITED TALK – 11 **A Human Factor Analysis of Metaverse And Case Studies On Manufacturing** Prof. Pradipta Biswas Professor (CPDM), IISc	INVITED TALK – 12 **Operationalizing AI/ML in Aerospace & Defense Applications** Dr. Badarinath Ambati and Sandeep Yadav Altair, India

SESSION IV	TRACK 10	TRACK 11	TRACK 12
Theme/Time	Aircraft Systems - Mechanical	Product Visualisation	Digital Twin
12:00 PM - 12:15 PM	CAT-04.4 **Effect of Residual stress on creep behavior for IN718 Superalloy of TIG welded joints** Kaustav Barat, Nikhil Kumar C, Vijay Petley,Pradeep Kumar A and KarodiVenkateswarlu NAL, Bengaluru	CAT-07.3 **Augmented Reality based Mobile App in Aircraft Applications** MaharudraKharsade and Pradipta Biswas IISC, Bengaluru	CAT-10.3 **Prediction of Remaining Useful Life of Amagb Gearbox Based on Digital Twin Concept** Bharathi D, Chandrasekar KG, Vijaya Kumar S, Srinivasan G, Solai Raju M and Balamurugan V CVRDE, DRDO
12:15 PM - 12:30 PM	CAT-04.6 **Development of eco-friendly Zn-Ni plating on Low alloy high strength steel parts, as an alternative to Cadmium plating, for aircraft applications.** Ashish Narkale, Dr. R K Rayudu, Dr. Angappan M, Teslin Johnson, Meenu Srivastava, Sai Venkata Pramod Kumar ADA, Bengaluru	CAT-07.4 **AR application for Real-Time Aircraft Parts Identification and Labelling and Associated Information** Amardeep R M, Vinothkumar S, Akshat Jain and S Ravi Parasad ADA, Bengaluru	CAT-10.2 **Renaulution Virtual Twin Transformation** Yuvaraj Murali, Olivier Mougin, Balasubramanian Natarajasundaram, Thomas Lorentz, Rajasekhar R and Olivier Colmard Renault Nissan Technology and Business Center private limited
12:30 PM - 12:45 PM	CAT-04.2 **Experimental Study on Enhancement in the Tribological Behavior of Low Carbon Steel with Military (MIL) grade Lubricant using MoS2 Nano Additives for Aerospace Applications** Senthil Kumar Munisamy, Elayaperumal A, Vidhya Sagar SS and SankaraiahMada ADA, Bengaluru	CAT-07.2 **Digital Mock-Up Analysis inclusive of displacements in dynamic environment of Fighter Aircraft** Anjan Murmu, Mithil Kumar S, Gokul V K, Jaya Prakash Narayana Aila and Srinivasa Rao L ADA, Bengaluru	CAT-10.4 **Virtual Fatigue Testing of a fighter aircraft using a Fatigue Digital Twin: A framework and challenges** Ravinu Garg and Deepa James ADA, Bengaluru
12:45 PM - 1:00 PM	CAT-04.8 **Optimization of Composite Material For Cargo Bike Frame** P B Keerthanna, Waddinkatti Afsar and G Muralidhar Altair India Private Limited	CAT-07.1 **War Gaming Scenario Generation for Training and System Evaluation** SukhenSaha, Antim Maida, Supriya Kumbharey and M Backialakshmi CABS-DRDO	CAT-10.5 **Duty cycle based digital twin approach to calculate remaining useful life of an aircraft gearbox.** Amol Korde Hexagon Manufacturing Intelligence
1:00 PM - 1:15 PM	CAT-04.7 **High-Pressure Water Separation System Coupled with Aircraft Fuel in Environmental Control System for Typical Aircraft Application** Vinay Pratap Singh Negi and Chennu Ranganayakulu BITS-Pilani,Rajasthan	Special INVITED TALK **VIRTUAL REALITY FOR AIRCRAFT DESIGN** Ms. P Archana Hebbar Senior Principal Scientist NAL, Bengaluru	CAT-10.1 **Demystifying Digital Twins: An example of EV battery twins to describe technologies and use cases** Nikhil Joshi and Girish Sohoni Hexagon Manufacturing HCL Technologies Limited
1:15 PM - 2:00 PM	Lunch		

SESSION V	TRACK 13	TRACK 14	TRACK 15
Theme/Time	System Modeling & Simulation	Aircraft Systems - Avionics / Electrical	PLM/Applications/ Digital Thread
2:00 PM - 2:30 PM	INVITED TALK – 13 **Model Based System Engineering** Vishal Naik Bolnekar Ansys	INVITED TALK – 14 Manjula / Karthikeyan BEL	INVITED TALK – 15 **GENAI Led Digital Transformation Across Aircraft Lifecycle** Dr. Ravi Kumar G. V. V. VP & Head Advanced Engineering Group, Infosys (DS)
2:30 PM - 2:45 PM	CAT-02.5 **Enhancing Efficiency and Standardization in CAE driven Automotive Product Development through Template-based Automation for Load Case Setup and Report Generation** Hareesh Narayanaswamy and Jojy Johnson Altair Engineering	CAT-03.4 **Optimized Design of Aircraft Electrical Wiring Interconnection Systems (EWIS) for Commuter Category Aircraft** Priyadarshini L, Mainak Ghoshhajra and Ananda CM NAL, Bengaluru	CAT-09.3 **PLM for Achieving Connected Products and Sustainability** Vivek Chaturvedi and Rakesh Kumar MOOG India Technology Center
2:45 PM - 3:00 PM	CAT-02.1 **Towards Seamless Collaboration in Aerospace Analysis: The SMARaN System Implementation** Baburaj A and Mahadeshkumar A ADA, Bengaluru	CAT-03.3 **A Test Bed for Design & Testing of Multi Sensor Data Fusion** B R Kapuriya, A Muthukumar, Nagaraju B and Rajesh R DRDO	CAT-09.1 **Configuration and Customization of a PLM Software for the Computer-Aided Design (CAD) Data Management** Anand Singh, Narayana R and Mahantesh SP NAL, Bengaluru
3:00 PM - 3:15 PM	CAT-02.10 **Configuration and Customization of a PLM Software for the Computer-Aided Engineering (CAE) Simulation Data Management** Anand Singh, Narayana R and Mahantesh SP NAL, Bengaluru	CAT-03.1 **A Control System design approach for Continuous Mixer and Extruder** Raghu Kodi, Vijay Kumar Nidagalkar and Ananthapadmanabha K M CMTI	CAT-09.2 **Reimagining product structure for Modular Build of a Fighter Aircraft** Prem Raj V, Vijayaragavan S and Vasudev VS HAL, Bengaluru
3:15 PM - 3:30 PM	CAT-02.12 **Structural Analysis of a Ship Using Simcenter FEMAP with NX Nastran** Jerry Clifford Francis and Pramod S	CAT-03.2 **Investigation of Electric field Distribution on a Single phase HV Cables using Finite Element Modelling** Mahesh Balakrishna Varrier and Stuart Steadman	CAT-09.8 **Driving Engineering and Manufacturing Efficiencies Through Digital Thread** Sunil Sidhanty and Neeraj Garg Infosys Ltd
3:30 PM - 4:00 PM	Poster Presentations	Poster Presentations	Poster Presentations
4:00 PM - 4:30 PM	Closing Ceremony followed by High Tea		

All common session will be held at the auditorium
Hall details for the parallel sessions will be announced