



**NCMDAO - 2**

## **Conference Schedule**

**Main venue:** M.S. Ramaiah University of Applied Sciences (MSRUAS), Peenya Campus

<b>Master classes (Pre-conference Workshop) - March 21<sup>st</sup> 2019</b>	
08:00	<b>Registration</b>
09:00	<i>Introduction: Prof. G K Ananthasuresh, IISc Bengaluru</i>
09:30	<i>Dr. Somanath Nagendra, Pratt &amp; Whitney, USA 'Mechanics, Machine Learning and Multidisciplinary Optimization - Challenges, Opportunities &amp; Applications'</i>
11:00	<b>Break</b>
11:30	<i>Prof. Palaniappan Ramu, IIT Madras &amp; Mohan Sangli, ICUBE CSI Pvt. Ltd., 'Metamodeling and Applications in Optimization'</i>
13:00	<b>Lunch</b>
14:00	<i>Vinay Ramanath, Siemens 'Probabilistic Optimization'</i>
15:30	<b>Break</b>
16:00	<i>Prof. Raja, Professor and Dept. Head, RUAS 'Research Programs and Activities at RUAS'</i>
16:30	<i>Sushil Mane, Altair Engineering 'Design Optimization of Composite Structures'</i>

<b>Day 1 - March 22<sup>nd</sup> 2019</b>		
09:00	<b>Inauguration</b>	
<b>Keynote Address - 1</b>		
09:30	<b>Dr. Bala Bharadvaj</b> <i>MD, Boeing India Engineering &amp; Technology Center and President, SAEINDIA</i> <i>Title: MDO in Aerospace – A Perspective</i>	
<b>Keynote Address – 2</b>		
10:15	<b>Dr. Garrett Vanderplaats</b> <i>Founder and CEO, Vanderplaats Research &amp; Development, Inc.</i> <i>Title: Design Optimization: History and Prospects (Remote/Video)</i>	
11:00	<b>Plenary Session – Rapid fire presentations of morning sessions (90 sec. each)</b>	
11:30	<b>Break</b>	
<b>1A</b>	<b>MDO and Applications : Aerospace Engineering</b>	<b>Chair 1</b> : Dr. Biswajit Tripathy (GM) <b>Chair 2</b> : Prof. M Ramanathan (IIT Madras)
11:45	Design of FSAPDS using Multidisciplinary Design Optimization (OpenMDAO)	Rishav Kanth and Basant Kumar Gupta (Zeus Numerix Pvt. Ltd. Pune)
12:00	Multi-Disciplinary Analysis for Accurate Bearing Compartment wall Temperatures	Krishna Nelanti, Anil Pola and Nagaraju Kanike (Cyient Limited)
12:15	Multi-Disciplinary Multi-objective Optimization of Compact Serpentine Air Intake Duct	Valliammai Somasundaram (ADA)
12:30	Gerlach Shaping based Air Intake Duct Optimization	Valliammai Somasundaram (ADA) and Balakrishnan N. (IISc)
12:45	Design Optimization for Adaptive Slotted Winglets	Omkar Lawate (MVJ College of Engineering)
13:00	Optimization of B-Spline launch vehicle payload fairing	Nihal K (IIST) and Pankaj Priyadarshi (VSSC)
13:15	Multi-objective Aerodynamic Optimization of a Hypersonic Scramjet Inlet	Lipi Roy (IIST) and Pankaj Priyadarshi (VSSC)
<b>1B</b>	<b>Machine Learning and Neural Networks in Optimization</b>	<b>Chair 1</b> : Prof. Raghavendra Kulkarni (RUAS) <b>Chair 2</b> : Phani Adduri (VR&D)
11:45	Machine learning based multidisciplinary design optimization (MDO) of vehicle body structures	Ranga Srinivas Gunti, Raghunath Kanugula, Sairam Peddi and Venugopal Shankar (Mahindra)
12:00	Topology optimization using machine learning algorithms	Harish Baki, Kandula Eswara Sai Kumar and Balaji Srinivasan (IIT Madras)
12:15	Rank aggregation approach to feature selection for improved model performance	Mohan Sangli and Anish Ravishankar (Intuceo)
12:30	Smart Thermal Data Match using Machine Learning	Krishna Nelanti, Naresh Nidamanuri, Suresh Thiraviyam and Raviraj Barapu (Cyient Limited)
12:45	Identification of Aerodynamic Derivatives of a Re-entry Module	Priyank Mark C (Manipal Institute of Technology) and Srinivasan K (VSSC)
13:00	Inverse response surface method for structural reliability analysis	M Nagesh and A S Balu (NIT Surathkal)

13:30	<b>Lunch</b>	
<b>Special Guest Talk</b>		
14:15	<p><b>Dr. V Adimurthy</b>  Honorary Distinguished Professor, Vikram Sarabhai Space Center, Department of Space  Padma Shri Awardee, Government of India  Title: Optimization in Earth Orbital and Interplanetary Mission Design</p>	
<b>Invited Talk - 1</b>		
15:00	<p><b>Prof. Dhish Saxena</b>  IIT Roorkee  Title: Knowledge discovery on problem structure through Multi-objective optimization</p>	
15:30	<b>Plenary Session – Rapid fire presentations of afternoon sessions (90 sec. each)</b>	
16:00	<b>Break</b>	
<b>2A</b>	<b>MDO and Applications: Automotive Engineering</b>	<b>Chair 1</b> : Prof. Rajkumar S Pant (IIT Bombay) <b>Chair 2</b> : Dr. Pankaj Priyadarshi (VSSC)
16:15	A Framework for Optimizing the current IC Engine powered vehicle structures for use in EV Platforms	Agniwesh Pratap Maurya, Srinivas Gunti, Venugopal Shankar and Sairam Peddi (M&M)
16:30	Design and Qualification of vibration fixture for verification of Electronic Module through Topology Optimization	Nishanth D (VIT)
16:45	BIW Optimization for Crashworthiness, NVH and Static loadcases	Gajanan Raikar (Optisign Technologies)
17:00	Using Multi-Model optimization techniques for Tractor Front axle support stress reduction	Ashith Kumar Shetty and Christopher Kevin P (Altair Engineering)
17:30	Model Based Design and Multi Objective Robust Optimization of Electric Vehicle for Performance, Range and Top Speed Objectives	Aniket Karandikar (ESTECO), Ashok Kumar Ravi, Elanchezhian Tamilselvam and Elavarasan Dharumaseelan (Modelon Engineering Pvt. Ltd.)
<b>2B</b>	<b>Optimization Algorithms and Methods</b>	<b>Chair 1</b> : Dr. Narendran Balan (Boeing) <b>Chair 2</b> : Prof. Salil Kulkarni (IIT Bombay)
16:15	Structural Layout and Size Optimization of Typical Fin Box in Process Integration Framework for Multiple Load Cases	S Deepa Sakravarthini, M S Narendra and Pavan Kumar Desineni (NAL)
16:30	Customized Initialization for Large-Scale Airline Crew Pairing Combinatorial Optimization Problems	Divyam Aggarwal, Dhish Saxena (IIT Roorkee), Thomas Bäck and Michael Emmerich (Leiden University)
16:45	Multi-Disciplinary Optimization using ISIGHT to reduce Thermal Gradients	Krishna Nelanti and Venu Lingala (Cyient Limited)
17:00	Simultaneous optimization of support location and cost for structures under static loading	Atul Korade and Sourav Rakshit (IIT Madras)
17:30	Optimization of multiple gravity assist trajectory with deep space maneuver using evolutionary algorithm	Sahana H R (Manipal Institute of Technology), Pooja Dutt and Anilkumar A K (VSSC)

<b>3A</b>	<b>Shape and Topology Optimization Applications</b>	<b>Chair 1</b> : Rajapandian Ramamoorthy (GM) <b>Chair 2</b> : Prof. H K Narahari (RUAS)
17:30	Reducing RCS of Aerospace and Marine vehicles by Shaping	Sumit Jana, Mohd. Naimuddin and Jason Jose (Zeus Numerix)
17:45	Conceptual Design Optimization of High Altitude Airships having a Tri-lobed Envelope	Manikandan Murugaiah (Manipal Institute of Technology) and Rajkumar S Pant (IIT Bombay)
18:00	Topology Optimized Design Methodology for Aero Engine Component	Mahesh Kavimandan, Lasheer Shareef Mohammad, Krishna Mylapalli, Chandrasheker Bassetti and Sai Deepika Vemula (Cyient Limited)
18:15	Shape optimization of beams with Scaled Boundary Finite Element Method and B-Splines	Kandula Eswara Sai Kumar, Sundararajan Natarajan and Sourav Rakshit (IIT Madras)
<b>3B</b>	<b>Approximation Methods and Surrogate Models</b>	<b>Chair 1</b> : Sesa Kiran Gundavarapu (Siemens) <b>Chair 2</b> : Prof. Rajib Chowdhury (IIT Roorkee)
17:30	Study of Wing Flutter at Preliminary Stages of Design	A T Sriram and H K Narahari (MSRUAS)
17:45	Heat Transfer Optimization in Wavy Tube	G Saravana Kumar and Shashwat Joshi (IIT Madras)
18:00	Design Exploration using Unique Multidisciplinary Design Optimization Framework	Garima Singh and Praveen Chandrashekariah (Altair)
18:15	Kriging Driven Optimization of Vehicle Components Using Equivalent Static Load (ESL) Methodology	Kshitiz Swaroop and Varun Agarwal (General Motors Technical Center India)
<b>End of Day 1</b>		
19:00	<b>Banquet Dinner</b>	

## Day 2 - March 23<sup>rd</sup> 2019

09:00	<p><b>Dr. Srivatsan Lakshminarasimhan</b>  <i>Scientist, Metacomp Technologies</i>  <i>Title : Metacomp Software Suite: Salient Features and Highlights</i></p>	
<b>Invited Talk - 2</b>		
09:30	<p><b>Prof. Gopal R. Shevare</b>  <i>Director, Zeus Numerix Pvt. Ltd and Adjunct Professor, IIT Bombay</i>  <i>Title: Application of MDAO tools in Aerospace and Defence</i></p>	
10:15	<b>Plenary Session – Rapid fire presentations of morning sessions (90 sec. each)</b>	
10:45	<b>Break</b>	
<b>4A</b>	<b>MDO and Applications: Aerospace Engineering</b>	<b>Chair 1 :</b> Prof. K Sudhakar (IIT Bombay) <b>Chair 2 :</b> Dr. Biswajit Tripathy (GM)
11:00	Multidisciplinary Analysis of a Re-entry Vehicle	Kota Santosh Lakshmi and Pankaj Priyadarshi (VSSC)
11:15	Design of Vortex Flaps for Reducing Approach Speed of a Supersonic Naval Fighter Aircraft	Soumyajit Behera, Muthuraj C, Balmiki Kumar, Srikanth U R, Sathish Sunnam and Rajkanwar Jolly (ADA)
11:30	Coupled Aero-structural Simulation Techniques using High-fidelity Analysis and Design Tools	Ravi Kumar Kovvali, Beerinder Singh, Srivatsan Lakshminarasimhan and Sukumar Chakravarthy (Metacomp Technologies)
11:45	Performance Analysis and Design Optimization of Two Baffle Muzzle Brake of 155mm Artillery Gun	Anubhav Tiwari and Vighnesh Pawar (Zeus Numerix Pvt. Ltd.)
12:00	Flying Wing Aircraft Design	Valliammai Somasundaram and Vetriselvan Natrajan (ADA)
<b>4B</b>	<b>Optimization Algorithms and Methods</b>	<b>Chair 1 :</b> Dr. Srinivas Gunti (M&M) <b>Chair 2 :</b> Dr. Pavan Kumar D V T G (NAL)
11:00	Driving Innovation through Design Space Exploration with HEEDS	Gajendra Gangadara and Johanna Pena (Siemens PLM)
11:15	Reliability based design optimization using Newton homotopy continuation	Kannan Sekar and Palaniappan Ramu (IIT Madras)
11:30	Toolkit components for Multidisciplinary Design, Analysis and Optimization)	C Balaji and Sukumar Chakravarthy (Metacomp Technologies)
11:45	Understanding Non-linearity of the Design Space Using Self Organizing Maps	Sidhant Thole and Palaniappan Ramu (IIT Madras)
12:00	Quantifying Uncertainties with Interval Variables in SBDO	Sivakumar A and Palaniappan Ramu (IIT Madras)
<b>5A</b>	<b>MDO and Applications : Automotive Engineering</b>	<b>Chair 1 :</b> Prof. Rajib Chowdhury (IIT Roorkee) <b>Chair 2 :</b> Prof. R Raja (RUAS)
12:15	A Rear Bumper System Structural integration to meet Low speed Crash	Rohit Mahajan, Anreddy Chakradhar, Yanamandra Bharadwaja, Rajesh Dwivedi and Sairam Peddi (MRV Chennai)
12:30	Reliability Based Design Optimization of a Door Beam for FMVSS214 Requirements	Kshitiz Swaroop, Biswajit Tripathy (General Motors Technical Center India) and Nihal Kakodkar (IIT Kharagpur)



12:45	Multi-Disciplinary Optimization of Sensor Bracket	Rajapandian Ramamoorthy and Shabareesh Kumar (General Motors Technical Center India)
13:00	Performance comparison of discrete Kalman filter and dynamic programming methods for pavement roughness identification	Shereena O. A, Krishnanunni C. G and Rao B. N (IIT Madras)
<b>5B</b>	<b>Shape and Topology Optimization Applications</b>	<b>Chair 1</b> : Prof. K Sudhakar (IIT Bombay) <b>Chair 2</b> : Prof. H K Narahari (RUAS)
12:15	Optimization of Numerical Master Geometry(NMG) for Aircraft Design using conic lofting	Ravi Teja P, Jothishwari N, Dinesh Nalluri and Ramanjulu Golla (ADA)
12:30	Preliminary Results of Application of Topology Derivative for the Design of Parts Made using Additive Manufacturing	Akshay Desai, Saketh Sridhara (IISc), Kiran Kumar, Sessa Gundavarapu (Siemens AG) and G K Ananthasuresh (IISc)
12:45	A Review on Optimization Methods to Enhance Energy Efficiency of Robots	Lakshmi Srinivas G, Arshad Javed and Raturaj Mane (BITS Pilani Hyderabad)
13:00	Isogeometric shape optimization of concrete shell structures	Abhinav Gupta, Rajib Chowdhury and Anupam Chakrabarti (IIT Roorkee)
13:15	<b>Lunch</b>	
14:00	<i><b>Bhavaneesh Athikary</b> Manager, Technology and Business Development, MSC Software Title : Holistic Optimization Approach for Performance, Manufacturing Process and Autonomous Systems</i>	
14:30	<b>Plenary Session – Rapid fire presentations of afternoon sessions (90 sec. each)</b>	
<b>6A</b>	<b>Analysis Methods and Optimization</b>	<b>Chair 1</b> : Prof. Raghavendra Kulkarni (RUAS) <b>Chair 2</b> : Sessa Kiran Gundavarapu (Siemens)
15:00	Characteristics of Corrugated GFRP Structure for Low Velocity Impact Damage	Sakshi Bakare, S. Rajanarsimha (K J Somaiya College of Engineering) Sachin Shrivastava (HAL Nashik)
15:15	Understand the effect of geometry on the microenvironment inside the bioreactor in the upstream process development	Nivetha A and Sridhar Turaga (Mu Sigma)
15:30	Achieving Zero defect in Wedge Encapsulation used in Resilient Gate Valve for Drinking Water application in MSME	L. Raja Ramanathan, A. Rajagopal , S. Prakash and K. Venugopal (Indian Statistical Institute Coimbatore)
15:45	Design and Analysis of a Shear Pin under Static Load	Dheeraj Kulkarni and Shreya Banerjee (BMSIT&M)
16:00	Stochastic Linear Smoothed Stable Extended Finite Element Method (SLS-SXFEM) for Heterogeneous Hyperelastic Materials with random interfaces	Tittu Varghese Mathew, Chintan Jansari, Krishna Kannan and Sundararajan Natarajan (IIT Madras)
16:15	Evaluation of environmental effects on mechanical properties of 30% and 50% glass fiber reinforced polyamide composites	Chaitanya Gandhi, Pranav Shinde, Bharathkumar K and Sarvanan K (Rane NSK Steering Systems Private Limited)
16:30	Tractor roll over protective structure design optimization using a simplified beam model	Sumeet Kumar, Abhay Kumar and Abhijit Londhe, Dinesh Redkar (MRV Chennai)

<b>6B</b>	<b>General Application of Optimization in Engineering</b>	<b>Chair 1</b> : Dr. Pankaj Priyadarshi (VSSC) <b>Chair 2</b> : Dr. Srinivas Gunti (M&M)
15:00	Innovative Design of Hydraulic Actuation System for Operator Fatigue Reduction and its Optimization	Sukrit Mittal, Divyam Aggarwal and Dhish Saxena (IIT Roorkee)
15:15	Support Structure Design for Enhanced Heat Transfer in Metal Additive Manufacturing	Neel Shah and G Saravana Kumar (IIT Madras)
15:30	Multi-objective optimization of a fabric reinforced composite	Rohit Madke and Rajib Chowdhury (IIT Roorkee)
15:45	Optimization of Kalman Filter for Target Tracking Applications	Sunil Kumar T and Punithavathi Duraiswamy (MSRUAS)
16:00	Modeling & Optimization of parameters for Surface Roughness in Turning Using Herbal based Nano Cutting Fluid with MQL	Gunji Srinivasarao and M Usha (RVR& JC College of Engineering)
16:15	Application of multiple attribute decision making optimization techniques for selection of process parameters of friction stir welding	Spruha Dhavale and Shivprakash Barve (MIT College of Engineering, Pune)
16:30	Design of a Mechanical Filter for Nonlinear Ultrasonic Measurements	Pravinkumar Ghodake, Sanket Chavan and Salil Kulkarni (IIT Bombay)
16:45	<b>Break</b>	
<b>Panel Discussion</b>		
17:00	<p><i>'Conference summary and trends in MDAO from the dual perspective of academia and industry'</i></p> <p><b>Moderator:</b> Prof. G. K. Ananthasuresh, IISc, Bangalore</p> <p><b>Panel Members</b></p> <p>Prof. Rajib Chowdhury, IIT Roorkee</p> <p>Dr. Shankar Venugopal, Mahindra and Mahindra</p> <p>Dr. Santhosh Koruthu, ADA</p>	
17:45	<b>Awards Ceremony &amp; Closure</b>	
18:00	<b>End of Day 2</b>	