



GTTC **25**

GT TECHNICAL CONFERENCE

PROGRAM AGENDA

Presentation Day: Jan 27, 2025

Seminar Day: Jan 28, 2025

Hyatt Regency, Viman Nagar, Pune

DAY 1 - MONDAY, JANUARY 27 | Morning Sessions

8:00 **REGISTRATION**

9:00 **Opening Address | Gamma Technologies**

Ramnik Singh, Director

9:15 **Welcome Address | Gamma Technologies**

Dimple Shah, CEO

9:40 **Keynote Speaker | Tata Motors**

Nandgopal K. Vaidya, Head of Vehicle Attributed Technical Services



10:05 **Keynote Speaker | Mahindra**

"GT-Play Enabling Vehicle on Cloud Concept"

Padmavathi R, Senior Principle Engineer



10:30 **Product Vision | Gamma Technologies**

Iakovos Papadimitriou, CTO

10:55 **REFRESHMENTS & DEMO BOOTHS**

VEHICLE/ xEV MODELING

11:30 **Hero Moto Corp Ltd.**

"HEV Concept Development of Two Wheeler"

Raja Phani Dandu, Expert - Engine Performance & Vehicle Performance

11:50 **Reliance Industries Ltd**

"Fuel Cell Power System Hardware Optimization using GT-SUITE"

Trideep Singh, Team Lead, Air Handling and Thermal Management, H2ICE & FCEV

12:10 **OLA Electric**

"Advances in Sensitivity Analysis for Automotive Design: Exploring Key Performance and Design Parameters"

Tarun Rana, Senior Manager

12:30 **Tata Motors**

"1D Simulation-Driven Digital Validation and Software Verification Framework for Integrated Electric Vehicle Systems using GT-SUITE"

Suhas Chormule, Senior Manager

12:50 **Gamma Technologies**

"ML based Fast & Light Digital-Twin of an Integrated BEV"

Ujjwal Chopra, Staff Application Engineer

THERMAL MANAGEMENT

Copeland

"Lubrication System Model of Trans-critical CO2 Reciprocating Compressor"

Santosh Damle, Senior Technical Lead

Volvo

"Electro-thermal Coupled Model to Predict Battery Performance & Thermal Runaway using GT-SUITE"

Reghunath Unnikumaran, Thermal Simulation Engineer

Daimler Truck Innovation Centre

"Automated Optimization of Coolant Flow Distribution in Electric Vehicle Systems Using GT-SUITE - Design Optimizer"

Ihsan Faseel, Senior 1D Simulation Analyst

Ecozen

"Modeling of Cold Room with Thermal Energy Storage using GT-SUITE"

Alok Nikhade, AVP of Technology

Havells

"Window Air Conditioner Refrigeration Cycle Balancing Using GT-SUITE"

Gautam Nagaraj, Senior Engineer

ENGINE & EXHAUST

Ashok Leyland Ltd

"Assessment of a H2 ICE Engine Knock behavior for Achieving High Power Density using GT-SUITE Simulation"

Kishore Kumar D, H2 ICE Lead at Engine R&D
Varun Parthiban R, Engineering Student

Cummins

"Physics Informed Machine Learning (PIML) for Engine Performance Predictions"

Dr. Milan Visaria, Thermal & Fluid Sciences Engineering Manager

Tata Motors

"ML based approach for optimization of Exhaust System using GT-SUITE"

Nitin Bodhale, Sr. Manager, Digital Solutions NVH

Volvo

"Predictive Modelling of Hydrogen Storage Dynamics for FCEV & H2ICE Using GT-SUITE"

Aishwarya Nair, Engineer (1D Simulation & Analysis)
Mohak Samant, Simulation & Analyst Specialist

Kirloskar Oil Engines

"Tolerance Study of a Diesel Engine using Sensitivity Analysis and Variability Analysis in GT-SUITE"

Sahil Ladole, Senior Engineer

DAY 1 - MONDAY, JANUARY 27 | Afternoon Sessions

13:10

LUNCH & DEMO BOOTHS

ELECTRIFICATION

14:20

Sona Comstar



"NVH Analysis of Electric Motors Using GT SUITE: Insights from GT-FEMAG"

Gopal Ghule, Engineer
Nakul Joshi, Senior Engineer

14:40

Mahindra Last Mile Mobility



"Predicting the SOH Degradation of a LFP based Battery Pack for a typical Real-World Duty Cycle Concerning Last Mile Mobility Segment"

Dr. Molji C, Manager

15:00

Amara Raja Advanced Cell Technologies



"Vibrational Impact: Unveiling the Hidden Degradation of Lithium-Ion Cell"

Dr. Brajesh Kanchan, Assistant Manager

15:20

Gamma Technologies

"Exploring GT-AutoLion's Capability to Reduce Time and Cost of Cell Aging Testing"

Pavan Kumar, Senior Engineer
Battery Modeling and Simulation

THERMO-FLUIDS

Copeland



"Meta Model generation in a Liquid Desiccant Air Conditioner"

Saurabh Prabhakar, Senior Technical Lead

Mahindra



"Evaluating Thermal Control Strategies to Improve Electric Vehicle Range Using GT-SUITE"

Abhijeet Chothave, Lead Engineer
Thermal System EV
Dipesh Kumar, Lead Engineer

Volvo



"A Multi-step Simulation Approach to Optimize Cooling Plates for Battery Packs Using GT-SUITE"

Shebin P S, Specialist Thermal
Simulation Engineer

Tata Motors



"Determination of Optimum Refrigerant Charge Quantity in ICE and EV using GT-SUITE 1D Simulation Tool"

Chandru M, CAE Analyst
Geet Shah, CAE Analyst

ENGINE & EXHAUST

Mahindra



"Diesel Engine Technologies to achieve Optimum Exhaust Gas Temperatures at Low Load conditions"

Prashant Goel, Lead Engineer in
Engine Simulation Group

Volvo



"Engine Model Development for Virtual Rig using GT-xRT"

Priyadharshan Chidhambararajan,
Senior Engineer

Mahindra



"Mass Balancer Unit GT Simulation for a 4 Cylinder Tractor Engine"

Shanmugavel S, Lead Engineer

Generac & GT



"Leveraging ML for Pre-CAE Design of an Accessory Belt Drive"

Sohail Anwar, Lead Engineer
Vinit Kumar, Senior Engineer

15:40

REFRESHMENTS & DEMO BOOTHS

16:15

Presentation | GammaTech Engineering

"Optimization of Light Commercial Vehicle Thermal Management via Multi-Physics Simulation"

Akash Jaiswal, Engineer



16:35

Presentation | Whirlpool

"Transient System Model to Virtually Predict Energy Consumption & Pull Down for a Refrigerator"

Atul Jadhav, Senior CAE Specialist



16:55

Presentation | Mahindra

"Enhancing Thermal Comfort and Vehicle Energy Efficiency: A Simulation Study Using GT-TAITHerm"

Abhijeet Chothave, Lead Engineer Thermal System EV
Sampath Kumar, Technical Lead



17:15

Presentation | Gamma Technologies

"Global Trends in System Simulation - Key Takeaways from US, EU & Asia GTTC"

Hitesh Chaudhari, Application Engineering Manager

17:25

CLOSING REMARKS

DAY 2 - TUESDAY, JANUARY 28 | Seminar Sessions

Timings: 9 AM - 5 PM | Hyatt Regency (Same as Day 1)

Registrations start at 8 AM @ Ground Floor: EQ-IQ

Vehicle Multi-physics Systems Integration and Optimization

Room - Da Vinci

- Integrated Multiphysics System Simulation and Modularity
- e-Powertrain Sizing
- Real-world driving scenarios
- xEV Controls Optimization
- Digital Twin using GT-SUITE, Machine Learning Assistant, GT-RealDrive, and GT-Play
- Solutions beyond passenger vehicle for off road applications

Thermal Management for xEVs System and Components

Room - Newton

- New applications of 1D/3D Flow Solution for Thermal System Engineers - such as Underhood Flow Analysis
- Component Thermal Heat Distribution
- Battery Thermal Runaway Analysis Leveraging 1D/3D
- v2025 Advances in Cooling Systems and Components Modeling
- Fast Running Models (FRMs) of Thermal System Models

E-Motor Design and Analysis

Room - Galileo

- Overview of Multiphysics E-Motor Simulations using GT-FEMAG
- Enhanced Flexibility in E-Motor Geometry Definition in GT-FEMAG
- Modeling different Motor Configurations- PMSM, Induction, Axial, SRM etc.
- Motor & Inverter component pre-design & sizing
- Advanced Thermal Workflows for E-Motors

Mechanical Dynamics of Powertrain

Room - Einstien

- MBD Analysis of Valvetrain, Cranktrain, Friction and Tribology
- NVH Analysis of Gearbox and E-axle
- MBD of Pumps and Compressors
- Metamodeling for Pre-CAE Concept Design

Lunch

Electric Powertrain System Design and Analysis

Room - Da Vinci

- Analyzing System Performance of the E-Powertrain Trio: E-Motor, Inverter, Battery
- Overview of GT-POWERFORGE for Inverter sizing and selection
- Quantifying & Optimizing Trade-offs between Efficiency & NVH using GT-SUITE, GT-FEMAG and GT-POWERFORGE

HVACR - Advancements in AC and Heat Pump

Room - Newton

- Modeling techniques for refrigeration systems like ice makers, refrigerators, etc.
- Advances in refrigeration systems and components modeling like vapor injection compressor, heat exchangers, TXV etc.
- CO2 System for Heating and Cooling Applications
- Case Study on cold storage Modeling
- Control Models for HVACR System

Battery Modeling - Cell Focus

Room - Galileo

- Cell Modeling (Physics based and Data driven approaches): Li-ion, Na-ion
- Detailed Cell Design and Analysis with 3D Techniques (AutoLion-3D and AutoLion-4D)
- Thermal Runaway Propagation
- Electrochemical-Thermo-Mechanical (ETM) Coupled Battery Modeling
- Battery Control (BMS) Design with Multi-Physics Models

Future Directions in Engine Performance Modeling

Room - Einstien

- Advanced Combustion Modeling for Pre-Chamber, Dual Fuel, etc. Configuration
- Modeling of Net-Zero Carbon Fuels
- Real-Time Engine Performance and Emissions Modeling for Virtual Calibration
- Machine Learning and Automated Calibration for Engine Models
- Automated Engine Model building using GT-Automation

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