# Final Program

## Tuesday February 4

| 08.00-09.00 | outside room A2 |
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**Registration and coffee**

| 09.00-10.00 | |
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**Tutorials in parallel**

- **Tutorial 1:** Prof. Peter Fritzson and John Tinnerholm, Linköping University.
  *"Introduction to Object Oriented Modeling, Simulation, Debugging and Dynamic Optimization with Modelica using OpenModelica"*
- **Tutorial 2:** Dr. Robert Braun, Linköping University and Dr. Lennart Ochel, VTI.
  "Functional Mockup Interface for Composite Modeling, Co-simulation and Model Exchange"
- **Tutorial 3:** Dr. Dirk Zimmer, DLR.
  "Modeling complex thermal architectures using the DLR ThermoFluid Stream Library in OpenModelica"

| 10.00-10.30 | outside room A2 |
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**Coffee break and poster exhibition**

| 10.30-12.00 | |
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**Tutorials continued**

| 12.00-13.10 | Kårallen |
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**Lunch**

| 13.10-15.30 | room A2 |
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**Plenary Session 1.** Chair: Petter Krus

- **Welcome by the MODPROD Vice Director.** Peter Fritzson
- **Information by the organizers.** Robert Braun
- **Keynote:** Per-Olof Marklund, Head of Technology and Innovation, Saab Aeronautics. *"Digital Engineering at Saab – history and future".*
- **Keynote**: Prof. Manuel Wimmer, Johannes Kepler University Linz. *"Model-Driven Engineering of Digital Twins"*

| 15.30-16.00 | outside room A2 |
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**Coffee break and poster exhibition**

| 16.00-17.00 | room A2 |
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**Parallel Session 2a.** Applications. Chair: Ingo Staack

- Lars Eriksson. *"Equation based model for losses in electric machines"*
- Erick Espinosa-Juárez. *"AI-Driven Pre-Design Predictions of a 90 Passenger Hybrid-Electric Aircraft"*
- Raghu Chaitanya Munjulury, Robert Hällqvist and Ludwig Sandberg. *"A Data-Driven Approach to Enhancing Engineering Interoperability in Aircraft Fuel Systems"*

| 16.00-17.00 | room ACAS |
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**Parallel Session 2b.** Modelling and Simulation. Chair: Ludvig Knöös Franzén

- Erik Rosenlund. *"Traceability of model Verification and Validation pipelines"*
- Abdelazim Hussien and Adrian Pop. *"Improving Automatic Parallelization for Equation Based Mathematical Modeling"*
- Nora Bennani, Corentin Friedrich, Andrés Lombana, Mouhcine Mendil and Charlie Schlick. *"CoFMPy: A Flexible FMI-based Co-Simulation Framework for Digital Twin Applications"*

| 17.15 | |
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**Bus to technical visit: Center for Medical Image Science and Visualization (CMIV)**

| 19.00 | Universitetsklubben |
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**Conference Dinner**

# Wednesday February 5

| 08.00-08.30 | outside room A2 |
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**Registration and coffee**

| 08.30-11.00 | room A2 |
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**Plenary Session 4.** Chair: Daniel Varro

- **Keynote:** Prof. John Baras, University of Maryland College Park.
  *"Efficient Incorporation of ML and AI in Model-Based Systems Engineering for Cyber-Physical Product Development"*
- **Keynote:** Dr. Mattias Tiger, Deputy leader of Reasoning and Learning Lab, Linköping University.
  *"Overview of AI Modeling Challenges in Preparing Robots for the Real World"*
- **Presentation of Research at the MODPROD center.** Lena Buffoni, Niclas Fock, Daniel Varro, Adrian Pop, and Petter Krus.

| 11.00-11.30 | outside room A2 |
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**Coffee break and poster session**

| 11.30-12.30 | room A2 |
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**Parallel Session 5a.** Standards & Languages. Chair: Robert Braun

- Adrian Pop and Lena Buffoni. *"The Common Requirement Modelling Language (CRML) Tool Status and Integration with OpenModelica"*
- Dimitris Daniel and Athanasios Mademlis. *"Integration of high order Functional Mock-up Units and Machine Learning prediction in 1D simulation"*
- Fredrik Bagge Karlsson. *"Compilation of Julia code for deployment in model-based systems engineering"*

| 11.30-12.30 | room ACAS |
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**Parallel Session 5b.** Model-Based Engineering. Chair: Niclas Fock

- Máté Földiák, Kristóf Marussy and Daniel Varro. *"Model-Based Stochastic Analysis with Probabilistic Graph Query Evaluation"*
- Dominik Frey, Ulf Kargén and Dániel Varró. *"Automated Scene Generation for Testing COLREGS-Compliance of Autonomous Surface Vehicles"*
- Edo Drenth. *"From CAE to SAE"*

| 12:30-13.30 | Kårallen |
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**Lunch**

| 13.30-14.30 | room A2 |
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**Plenary Session 6.** Artificial Intelligence and Machine Learning. Chair: Lars Eriksson

- José Antonio Hernández López. *"Text2VQL: Teaching a Model Query Language to Open-Source Language Models with ChatGPT"*
- Jorge Lovaco. *"Generative AI in Modelling and Simulation"*
- Petter Krus. *"Concept Generation and Modelling with Large Language Models"*

| 14.30-15.00 | outside room A2 |
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**Coffee break**

| 15.00-15.30 | room A2 |
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**Panel Discussion: Generative AI in product development – past, present and future**

| 15.30-17.00 | room A2 |
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**OpenSCALING Project Meeting.** For project participants only.