

Preliminary Program

SeRC 16:th Annual Meeting, May 15-16 2025, Skåvsjöholm

Theme: AI4Science

Thursday May 15

11:50 (Sharp) **Chartered buses** leave from KTH, in front of Lindstedtsv 3 (registration needed)

12:30 **Lunch**

13.30-13.45 **Welcome**

Dan Henningson, SeRC Director, KTH

Annika Borgenstam, Vice President for Research, KTH

13.45-14.05 **AI4Science landscape in Sweden**

Anders Ynnerman, SeRC Steering group, LiU

14.05-14.15 **Structure of the meeting**

Hedvig Kjellström, SeRC Management group, KTH

Session 1 (equation driven)

14.20-14.30 **AI in Space for Scientific Missions: Strategies for Minimizing Neural-Network Model Upload**

Jonah Ekelund, KTH, SESSI

14.30-14.40 **High-resolution simulation of turbulence in the atmospheric boundary layer**

Linnea Larsson Huusko, SU, M3

14.40-14.50 **AI-Driven Exploration of Spin Systems**

Qichen Xu, KTH, MD2

Keynote 1

14.55-15.40 **Where has AI been, where is it going, and what are the implications for science?**

Jonas Unger, LiU and Amy Loutfi, LiU and OrU

15.45 **Coffee**

16.10-16.25 **Mimer AI Factory**

Erik Lindahl, SeRC Management group, LiU and SU

16.25-16.35 **One minute student spotlights**

MSc students from the member universities

Keynote 2

16.40-17.25 **TITLE**

Cheng Zhang, Meta AI, UK

Session 2 (mostly equation driven)

17.30-17.40 **Generative AI with diffusion models for novel stable crystal structures**

Oskar Andersson, LiU, Data Science

17.40-17.50 **Machine Learning Approaches to Visual Analysis in Molecular and Quantum Systems**

Robin Skånberg, KTH, Visual Data Analytics

17.50-18.00 **Hard Coating Alloy Database: towards AI-based Approach in Material Design**

Sheuly Ghosh, LiU, MD2

18.00-18.10 **Building and Evaluating Computational Pathology Foundation Models for Breast Cancer**

Fredrik Gustafsson, KI, eMPHasis

19.00 **Dinner**

Friday May 16

Session 3 (mostly data driven)

- 09.00-09.10 **Advancing algorithms for uncertainty quantification**
Federica Millinanni, KTH, Brain-IT
- 09.10-09.20 **Why did AlphaFold generate high scoring false-positives homomeric multimers?**
Sarah Narrowe Danielsson, SU, Data Science
- 09.20-09.30 **Custom Generation of Spider Silk Sequences**
Neeru Dubey, KTH, Data Science

Keynote 3

- 09.35-10.20 **TITLE**
Arnoldo Frigessi, University of Oslo, Norway

- 10.25 **Coffee**

Session 4 (data driven)

- 11.00-11.10 **Task-specific vs foundation models in prostate pathology: a comparative study on diagnostic reliability, generalization, and sustainability**
Nita Mulliqi, KI, eMPHasis
- 11.10-11.20 **Neurocomputational mechanisms of verbal omissions in free odor naming tasks**
Nikolaos Chrysanthidis, KTH, Brain-IT
- 11.25-12.20 **Panel with the keynote speakers**
Recommendations for the road ahead. Focus on AI4Science (including taxonomy) and software development. Input from the audience.
- 12.20-12.30 **Closure**
Dan Henningson, SeRC Director, KTH
- 12.30 **Lunch**
- 13.30 (Sharp) **Chartered buses** leave from Skåvsjöholm for KTH (registration needed)

Connected meeting:

- Thursday May 15** 10.00-12.30 SeRC Steering group and Advisory group meeting