

Physics meets AI

| | Mon 12. | Tue 13. | Wed 14. | Thu 15. | Fri 16. |
|-------------|---------|---------------|-------------------|-----------------|--------------------|
| 9.00-10.30 | Rezende | Rezende | Grün | Gabrie | Plehn |
| 10.30-11.00 | Coffee | | | | |
| 11.00-12.30 | Cole | Melko | Gabrie | Carleo | Heimel Vicentini |
| 12.30-14.30 | Lunch | | | | |
| 14.30-16.00 | Melko | Kutyniok | Kutyniok | Plehn | |
| 16.00-16.30 | Coffee | | free afternoon | | |
| 16.30-18.00 | Bohrdt | Cole Melko | | Heimel Carleo | |
| 18.00-...? | | Postersession | Beer garden? | Postersession | |

Titles

Annabelle Bohrdt (Harvard University): Understanding your network - towards interpretability in machine learning applications in many-body physics

Theo Heimel (Heidelberg University), replacing Anja Butter: Boosting event generation & unfolding with generative networks

Giuseppe Carleo (EPFL, Lausanne): Neural network quantum states: from ground states to dynamics

Alex Cole (Amsterdam University):

- 1) Simulation-based inference for physics and beyond
- 2) Machine learning for string theory

Marylou Gabrie (École Polytechnique, Paris): Beyond ground states: Assisting sampling of physical states with generative models

Daniel Grün (LMU Munich): Artificial Intelligence for Precision Cosmology

Gitta Kutyniok (LMU Munich):

- 1) Mathematical Foundations of Deep Learning
- 2) Reliable AI: Dream or Reality?

Roger Melko (Perimeter Institute, Waterloo):

- 1) Generative models and many-body physics
 - 2) Autoregressive models and quantum state reconstruction
- Tutorial: Quantum state reconstruction of Rydberg atom arrays

Tilman Plehn (Heidelberg University):

- 1) ML and LHC Physics
- 2) Bayesian Networks and Uncertainties

Danilo Rezende (DeepMind):

- 1) Generative Models, Manifolds and Symmetries: Tools
- 2) Generative Models, Manifolds and Symmetries: Applications

Filippo Vicentini (EPFL, Lausanne): NetKetI: hands-on tutorial on neural network quantum states (Tutorial)