EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

machine learning
new perspectives
for science

Machine Learning meets

Physics

Workshop, 1 February 2023

Venue: Auf der Morgenstelle 10, Building C, Room 7E02

13:00 – 13:15	**Arrival and Welcome**
13:15 – 13:20	**Introduction** Martin Oettel (Department of Physics, University of Tübingen)
13:20 – 14:15	**Spotlight Presentations:** **Testing Fundamental Physics with Gravitational Waves** Daniela Doneva (Department of Physics, University of Tübingen) **Numerical Simulations of Collisions between Protoplanets** Christoph Schäfer (Department of Physics, University of Tübingen) **ML for Spectral Gaps of AKLT Hamiltonians** Marius Lemm (Department of Mathematics, University of Tübingen) **Learning Generators of (open) System Quantum Dynamics** Igor Lesanovsky (Department of Physics, University of Tübingen) **Finding Classical Density Functionals and Power Functionals in Analytic Form** Martin Oettel (Department of Physics, University of Tübingen) **ML on Scattering Data (X-Rays and Neutrons)** Frank Schreiber (Department of Physics, University of Tübingen) **A few observations on where ML is really good at and where it can make a difference. Mostly to spark thoughts.** Georg Martius (Max Planck Institute for Intelligent Systems, Tübingen) **Neuromorphic Computing with Strongly Correlated Materials** Stefan Guénon (Department of Physics, University of Tübingen) **ML in Quantum Metrology** Daniel Braun (Department of Physics, University of Tübingen)
14:15 – 15:00	**Discussion and Coffee Break**
15:00 – 15:15	**Mechanistic Models and Machine Learning** Jakob Macke (Department of Computer Science, University of Tübingen)
15:15 – 17:00	**Discussion about Topics of mutual benefit, Potential "hot" topics, Method development vs. application of methods, etc.**
17:00 –	**Open End**

Please indicate your interest for participation via e-mail to sebastian.schwenk@uni-tuebingen.de.

The workshop is organized by Martin Oettel (Department of Physics) in collaboration with the Central Office of the Excellence Cluster ML for Science, University of Tübingen.