

# **Many-body quantum physics with machine learning**

## **Report of Contributions**

Contribution ID: **1**

Type: **not specified**

## REGISTRATION

*Monday, 4 September 2023 09:00 (30 minutes)*

Contribution ID: 2

Type: **not specified**

## Welcome ECT\* Director

*Monday, 4 September 2023 09:30 (5 minutes)*

**Presenter:** AARTS, Gert

Contribution ID: 3

Type: **not specified**

## **Electron gas and hydrogen: from ground state energies to excitation spectra**

*Monday, 4 September 2023 11:00 (1 hour)*

**Presenter:** HOLZMANN, Markus

Contribution ID: 4

Type: **not specified**

# **Learning ground states of gapped quantum Hamiltonians with Kernel Methods**

*Monday, 4 September 2023 12:00 (30 minutes)*

**Presenter:** GIULIANI, Clemens

Contribution ID: 5

Type: **not specified**

## Neural Quantum States for Mixed States and their sample complexity

*Monday, 4 September 2023 14:00 (1 hour)*

**Presenter:** VICENTINI, Filippo

Contribution ID: 6

Type: **not specified**

# Liquid-Solid Phase Transition in 2D He-4 With Neural Quantum States

*Monday, 4 September 2023 15:00 (30 minutes)*

**Presenter:** LINTEAU, David

Contribution ID: 7

Type: **not specified**

## Discussion session

*Monday, 4 September 2023 16:00 (2 hours)*



Contribution ID: 8

Type: **not specified**

## A simple NQS on a discretized lattice space

*Tuesday, 5 September 2023 09:30 (1 hour)*

**Presenter:** BARBIERI, Carlo

Contribution ID: 9

Type: **not specified**

# Neural Network Quantum States for spinless fermions

*Tuesday, 5 September 2023 11:00 (1 hour)*

**Presenter:** KEEBLE, James

Contribution ID: **10**

Type: **not specified**

## **Anti-symmetrized neural quantum states**

*Tuesday, 5 September 2023 12:00 (30 minutes)*

**Presenter:** ROZALÉN, Javier

Contribution ID: **11**

Type: **not specified**

# **Ultracold atoms with neural network quantum states**

*Tuesday, 5 September 2023 14:00 (1 hour)*

**Presenter:** Dr KIM, Jane (OSU)

Contribution ID: 12

Type: **not specified**

## Transfer learning for many-body physics

*Tuesday, 5 September 2023 15:00 (30 minutes)*

**Presenter:** AZZAM, Amir

Contribution ID: **13**

Type: **not specified**

## Discussion session

*Tuesday, 5 September 2023 16:00 (2 hours)*

Contribution ID: 14

Type: **not specified**

# Neural Quantum States for Neutron Stars

*Wednesday, 6 September 2023 09:30 (1 hour)*

**Presenter:** FORE, Bryce

Contribution ID: 15

Type: **not specified**

# Natural Quantum Monte Carlo Computation of Excited States

*Wednesday, 6 September 2023 11:00 (1 hour)*

**Presenter:** PFAU, David



Contribution ID: **16**

Type: **not specified**

## Neural Network Applications in Pionless EFT

*Wednesday, 6 September 2023 12:00 (30 minutes)*

**Presenter:** PARNES, Elad

Contribution ID: 17

Type: **not specified**

## **ML applied to the analysis of quantum phases in a quantum simulation of the Agassi model**

*Wednesday, 6 September 2023 14:00 (1 hour)*

**Presenter:** PÉREZ-FERNANDEZ, Pedro

Contribution ID: **18**

Type: **not specified**

# **Unbiasing time-dependent Variational Monte Carlo by projected quantum evolution**

*Wednesday, 6 September 2023 15:00 (30 minutes)*

**Presenter:** SINIBALDI, Alessandro

Contribution ID: **19**

Type: **not specified**

## Discussion session

*Wednesday, 6 September 2023 16:00 (2 hours)*

Contribution ID: 20

Type: **not specified**

# Optimising Fermionic Neural Networks with Decision Geometry

*Thursday, 7 September 2023 09:30 (1 hour)*

**Presenter:** DRISSI, Mehdi

Contribution ID: 21

Type: **not specified**

# **Self-learning projective quantum Monte Carlo simulations guided by neural network states**

*Thursday, 7 September 2023 11:00 (1 hour)*

**Presenter:** PILATI, Sebastiano

Contribution ID: 22

Type: **not specified**

# Evolution optimization in Digital-Analog Quantum Simulations

*Thursday, 7 September 2023 12:00 (30 minutes)*

**Presenter:** SAIZ-CASTILLO, Alvaro

Contribution ID: 23

Type: **not specified**

# Simulating Quantum Field Theories with Neural Network Representation

*Thursday, 7 September 2023 14:00 (1 hour)*

**Presenter:** LUO, Di



Contribution ID: 24

Type: **not specified**

# **Machine learning flow-based models for nuclear many-body calculations with quantified uncertainties**

*Thursday, 7 September 2023 15:00 (30 minutes)*

**Presenter:** WEN, Pengsheng (Texas A&M University)

Contribution ID: 25

Type: **not specified**

## Discussion session

*Thursday, 7 September 2023 16:00 (2 hours)*

Contribution ID: **26**

Type: **not specified**

**TBA**

**Presenter:** TBC

Contribution ID: 27

Type: **not specified**

**TBA**

**Presenter:** TBA

Contribution ID: 28

Type: **not specified**

## **Data-driven discovery of relevant information in quantum simulators**

*Friday, 8 September 2023 11:00 (1 hour)*

**Presenter:** VERDEL ARANDA, Roberto (The Abdus Salam International Centre for Theoretical Physics (ICTP))

Contribution ID: 29

Type: **not specified**

# Exploring self-bound Hypernuclear states with Neural Quantum States

*Friday, 8 September 2023 12:00 (30 minutes)*

**Presenter:** DI DONNA, Andrea

Contribution ID: **30**

Type: **not specified**

## Workshop Introduction

*Monday, 4 September 2023 09:35 (55 minutes)*

**Presenter:** RIOS HUGUET, Arnau

Contribution ID: **31**

Type: **not specified**

# Improving qubit readout with autoencoders

*Friday, 8 September 2023 10:00 (30 minutes)*

**Presenter:** Dr LUCHI, Piero (Trento)