

## **Session Program**

**7-9 Mar 2024**

# **PITT PACC Workshop: Exploring Quantum Mechanics in High Energy Physics**

## ***Talks***

# Thursday 7 March

09:00

## Talks

### Session

09:00–09:05

### Welcome and Workshop Overview

#### Speakers

Matthew Low, Tao Han

09:05–09:40

### A Welcome Story

#### Speaker

Tao Han

09:45–10:20

### Quantum Mechanics in Field Theory: Quantum? Field Theory

#### Speaker

Juan Ramon Munoz De Nova

10:25

10:55

## Talks

### Session

10:55–11:30

### Observation of Quantum Entanglement in $t\bar{t}$ pairs at ATLAS

#### Speaker

Dr James William Howarth

11:35–12:10

### Perspectives on Quantum Entanglement

#### Speaker

Andreas Werner Jung

12:15

14:00

## Talks

### Session

14:00–14:35

### Quantum Information with Electroweak and Higgs Bosons

#### Speaker

Alan Barr

14:40–15:15

### When Theory Becomes Reality: Measuring Quantum Information Concepts with $t\bar{t}$

#### Speaker

Yoav Afik

15:20

15:50

## Talks

### Session

15:50–16:25

### Probing new physics through entanglement

#### Speaker

Rafael Aoude

16:30

# Friday 8 March

09:00

## Talks

### Session

09:00–09:35

### Three-body Entanglement in Particle Decays

#### Speaker

Kazuki Sakurai

10:20

10:50

## Talks

### Session

10:50–11:25

### Quantum tests with entangled B meson pairs at the Belle and Belle II Experiments

#### Speaker

Sven Vahsen

11:30

13:45

## Talks

### Session

13:45–14:20

### Shut Up and Calculate: The Many Worlds of Quantum Mechanics

#### Speaker

Surjeet Rajendran

14:25–15:00

### Nonlinear Quantum Mechanics

#### Speaker

David Kaplan

15:05

15:35

## Talks

### Session

15:35–16:10

### Resonances in $t\bar{t}b\bar{b}$ with quantum observables

#### Speaker

Claudio Severi

16:15

# Saturday 9 March

09:00

## Talks

### Session

09:00–09:35

**Real-time non-perturbative dynamics of jet production in the Schwinger model: from quantum entanglement to thermalization**

**Speaker**

Adrien Florio

09:40–10:15

**Quantum-probabilistic Hamiltonian learning for generative modelling and anomaly detection**

**Speaker**

Jack Y. Araz

10:20

10:50

## Talks

### Session

10:50–11:25

**Quantum Entanglement and Bell Inequality Violation in Semi-Leptonic Top Decays**

**Speaker**

Arthur Wu

11:30–12:05

**Entanglement Suppression, Enhanced Symmetry and a Standard-Model-like Higgs Boson**

**Speaker**

Carlos E.M. Wagner

12:10