Session Program

3–5 Apr 2024

2nd Terrestrial Very-Long-Baseline Atom Interferometry Workshop

Session

Imperial College - London

Wednesday 3 April

10:45

Session: Welcome & Introduction

Session | **Location:** Imperial College - London

10:45–10:55 **Welcome**

Speaker
Oliver Buchmuller

10:55–11:15 **Introduction UK Funding Agency**

Speaker
Dave Newbold

11:15–11:25 **Introduction to Proto-Collaboration MoU**

Speaker
Sergio Calatroni

11:25–11:55 **Setting the Science scene**

Speaker
Jonathan R. Ellis

11:55–12:25 **Setting the Technology scene**

Speaker
Ernst Rasel

12:25

15:30

Session: Atom interferometry: Large momentum transfer techniques

Session | **Location:** Imperial College - London | **Conveners:** Andrea Bertoldi, Chris Overstreet, Michael Holynski

15:30–15:50 **Optimal Floquet Engineering for Large Scale Interferometers**

Speaker
Alexandre Gauguet

15:50–16:10
A single-photon large-momentum-transfer atom interferometry scheme for Sr with application to determining the fine-structure constant

Speaker
Chris Foot

16:10–16:30 **Atom interferometer using spatially localized beamsplitter**

Speaker
Pierre Clade

16:30–16:45 **Multi-photon clock atom interferometry**

Speaker
Jason Hogan

16:45–17:00
Managing Bloch Oscillation Phases for Large-Momentum-Transfer Atom Interferometry

17:00

Speaker
Subhadeep Gupta

Thursday 4 April

09:30

Session: Atom sources: Scaling atom number and temperature

Session | **Location:** Imperial College - London | **Conveners:** Tiffany Harte, Dennis Schlippert, Philippe Bouyer

09:30–09:50 **High-flux source of cold strontium atoms**

Speaker
Shayne Bennetts

09:50–10:10
Quantum simulation – Engineering & understanding quantum systems atom-by-atom

Speaker
Monika Aidelsburger

10:10–10:30
Matter-wave collimation to picokelvin energies with scattering length and potential shape control'

Speaker
Alexander Herbst

10:30–10:50 **Fast formation of quantum gas for atom interferometers**

Speaker
Shau-Yu Lan

11:00

11:00

Session: Squeezing and multipartite entanglement for atom interferometry

Session | **Location:** Imperial College - London | **Conveners:** Leonardo Salvi, Richard Hobson

11:00–11:25
Progress towards a squeezed-state atom interferometer in a ring cavity

Speaker
Onur Hosten

11:25–11:40
Progress towards a squeezed-state atom interferometer in a linear cavity

Speaker
Richard Hobson

11:40–12:00 **Quantum-enhanced BEC interferometry**

Speaker
Robin Corgier

12:00–12:20
Experimental atom interferometry with entanglement-enhanced resolution

Speaker
Carsten Klempt

12:30

13:30

Session: Atom interferometry: Metrology & Systematics

Session | **Location:** Imperial College - London | **Conveners:** Alexandre Gauguet, Naceur Gaaloul, Dr Jeremiah Mitchell

13:30–13:50

Wave distortion and other systematic effects in high precision atom interferometry

Speaker
Pierre Clade

13:50–14:10

Coriolis Force Compensation for Long Baseline Atom Interferometry

Speaker
Jonah Glick

14:10–14:30

Baseline optimization for large-scale detectors

Speaker
Fabio Di Pumpo

14:30–14:50

Quantum sensing with ultracold atoms in phase-modulated optical lattices

Speaker
Carrie Weidner

15:00

15:00

Session: Site & Engineering Challenges for a large-scale AI

Session | **Location:** Imperial College - London | **Conveners:** Adam Lowe, Robert Plunkett

15:00–15:20

Structural Stability and Instrument Installation of a 10m Interferometer in the Beecroft Building (AION)

Speakers
Zhongyin Pan, Zoie Tam

15:20–15:40

Progress and Challenges in MAGIS-100 Construction (MAGIS)

Speaker
Linda Valerio

15:40–16:00

Laboratorio Subterraneo de Canfranc as a site for VLBAI experiments

Speaker
Elias Lopez Asamar

16:00–16:20

Update on ZAIGA

Speaker
Lin Zhou

16:30