

Imperial College
London

FIRST AION WORKSHOP INTRODUCTION

AION WORKSHOP, MARCH 25, 2019

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First AION Workshop at Imperial College London March 25/26 2019



*Organised by:
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**2-Day Workshop:
Day 1: Instrumentation
Day 2: Physics case**

**If you like to participate or
require further information
please contact:
fundamental-physics-admin@imperial.ac.uk
with "AION" in title.**

Scope of the Workshop

The workshop will be a critical milestone for the assembly of a complete proposal to construct and operate a next generation Atomic Interferometric Observatory and Network (AION) in the UK.

- It will enable the exploration of properties of dark matter as well as searches for new fundamental interactions.
- In addition, the proposal is supposed to provide a pathway for detecting gravitational waves from the very early universe in the, as yet mostly unexplored, mid-frequency band, ranging from several milliHertz to a few Hertz.

The first day of the 2-day workshop will focus on the technology aspects of the project, while the second day will be devoted to discussions of the physics case and how to further develop and strengthen it.

- The project spans several communities: fundamental particle and astroparticle physics, atom interferometry, gravitational wave physics, and cosmology.

2 Days with Different Themes

Day 1:

Instrumentation &
The AION Project

Day 2:

The Physics Case of AION

Agenda Today Morning

MONDAY, 25 MARCH



10:00	→ 10:30	Welcome Coffee	🕒 30m
10:30	→ 10:40	Introduction to Day 1: Instrumentation and Project Speaker: Oliver Buchmuller (Imperial College (GB))	🕒 10m
10:40	→ 11:10	Quantum Sensor for Fundamental Physics Consortium Speaker: Themis Bowcock (University of Liverpool (GB))	🕒 30m
11:10	→ 11:40	The AION Project Speaker: Oliver Buchmuller (Imperial College (GB))	🕒 30m
11:40	→ 12:10	Atom Interferometry in the UK ¶ Speaker: Jonathon Coleman (Physics Dept, University of Liverpool)	🕒 30m
12:10	→ 12:40	The MAGIS-100 Project in the US Speaker: Jason Hogan (Stanford University)	🕒 30m
12:40	→ 13:30	Lunch	🕒 50m

Agenda Monday Afternoon

O. Buchmueller AION Workshop

13:30 → 15:00	<p>AION Work Package Proposal</p> <p>Work Packages: Introduction</p> <p>Speakers: Jonathon Coleman (Physics Dept, University of Liverpool), Oliver Buchmuller (Imperial College (GB))</p> <hr/> <p>WP AION-10</p> <p>Speaker: Chris Foot (University of Oxford)</p> <hr/> <p>WP AION-Upgrades</p> <p>Speaker: Richard Hobson (National Physical Laboratory)</p> <hr/> <p>WP AION-100</p> <p>Speaker: Pawel Majewski (STFC/RAL)</p> <hr/> <p>WP AION-Physics ¶</p> <p>Speaker: Oliver Buchmuller (Imperial College (GB))</p> <hr/> <p>WP MAGIS100</p> <p>Speaker: Jonathon Coleman (Physics Dept, University of Liverpool)</p>	<p>🕒 1h 30m </p> <p>🕒 15m </p> <p>🕒 15m </p> <p>🕒 15m </p> <p>🕒 15m </p> <p>🕒 15m </p>
15:00 → 15:30	<p>Coffee break</p> <p>🕒 30m</p>	
15:30 → 16:00	<p>WP: Instrumentation</p> <p>High-power laser system for strontium AI</p> <hr/> <p>High-flux sources for strontium AI</p> <p>Speaker: Chris Foot (University of Oxford)</p>	<p>🕒 30m </p> <p>🕒 15m </p> <p>🕒 15m </p>
16:00 → 16:30	<p>AION Work Package Proposal: Discussion</p> <p>Introduction to discussion</p> <p>Speakers: Jonathon Coleman (Physics Dept, University of Liverpool), Oliver Buchmuller (Imperial College (GB))</p>	<p>🕒 30m </p> <p>🕒 10m </p>
16:30 → 17:00	<p>Towards AION Proposal and Collaboration</p> <p>Introduction to discussion</p> <p>Speakers: Jonathon Coleman (Physics Dept, University of Liverpool), Oliver Buchmuller (Imperial College (GB))</p>	<p>🕒 30m </p> <p>🕒 10m </p>
17:00 → 17:30	<p>Coffee break</p> <p>🕒 30m</p>	
17:30 → 18:30	<p>Discussion/Contingency</p>	<p>🕒 1h </p>