UK Accelerator Institutes Seminar Series Winter 2025 (Session 12)

Report of Contributions

Seminar 1

Contribution ID: 8

Type: not specified

Seminar 1

Contribution ID: 9

Type: not specified

Special JAI Student Lectures - Effective Science Communication in Particle and Accelerator Physics

Thursday 30 January 2025 15:15 (2 hours)

Communicating effectively can make the difference in a selection process for a new position or accessing funding for your project. For that reason, both in academia and in industry, strong communication skills became an essential asset. These lectures aim to empower particle and accelerator physics researchers to communicate their findings effectively, both internally and externally, foster collaboration, and potentially ensure funding and ultimately drive research career success. The first part of the lectures will cover the basic aspects of effective science communication: adapting the message to different audiences and increasing engagement, improving public speaking skills using compelling narratives, and managing uncertainty. In the second part we will put into practice some of the points discussed in the first part, including short pitches, writing exercises, and discussions about ethics and trust in communication. The lectures are tailored to graduate students and researchers willing to improve their communication skills.

Presenter: Dr GARCIA-MORALES, Hector

University Neutrons: The High-...

Contribution ID: 10

Type: not specified

University Neutrons: The High-Flux Accelerator Facility at Birmingham

Thursday 6 February 2025 15:15 (1 hour)

The University of Birmingham has operated several accelerators since the 1940s and in December 2023, the new High Flux Accelerator-Driven Neutron Facility (HF-ADNeF) was commissioned. At its heart is a high-current 2.6 MV proton / deuteron accelerator, capable of 30-50 mA. A high-power, rotating lithium target can generate 1e12 neutrons/cm²/s via the Li-7(p,n)Be-7 reaction. Additionally, from the Birmingham Cyclotron Facility, lower fluxes of higher energy neutrons are available using deuteron beams on a cooled beryllium target.

These two facilities will be presented along with a selection of the research carried out and planned at the accelerators.

Author: WHELDON, Carl (University of Birmingham)

Presenter: WHELDON, Carl (University of Birmingham)

TBA

Contribution ID: 11

Type: not specified

TBA

Thursday 13 February 2025 15:15 (1 hour)

TBA

Contribution ID: 12

Type: not specified

TBA

Thursday 20 February 2025 15:15 (1 hour)

Contribution ID: 13

Type: not specified

The TWOCRYST Project at the CERN Large Hadron Collider: Pioneering a Novel Experiment to Explore Charmed Baryons

Thursday 27 February 2025 15:15 (1 hour)

The study of magnetic and electric dipole moments (MDM and EDM) of charm baryons, such as the Λ C, offers an unprecedented opportunity to explore fundamental physics beyond the Standard Model. However, these particles have incredibly short lifetimes—just 10^{-13} seconds—making such measurements extremely challenging. A breakthrough becomes possible by confining their motion within the atomic lattices of ultra-pure bent crystals, where strong electromagnetic fields can induce measurable spin precession.

In early 2025, a pioneering set-up called TWOCRYST was installed at the LHC to test this concept at TeV energies for the first time. This proof-of-principle experiment consists of a solid fixed target, two bent crystals, and two precision detectors. The data collected from TWOCRYST will be critical in assessing the feasibility of a full-scale experiment, potentially to be realized during LHC Run 4, aimed at directly measuring the dipole moments of charm baryons. This talk will cover the motivation behind TWOCRYST, the innovative technologies involved, and how its results will shape the future of high-precision charm physics at the LHC.

Presenter: Dr HERMES, Pascal (CERN)

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Contribution ID: 14

Type: not specified

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Thursday 6 March 2025 15:15 (1 hour)

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Contribution ID: 15

Type: not specified

TBA

Thursday 13 March 2025 15:15 (1 hour)