

Higgs Maxwell Workshop 2026

Report of Contributions

Contribution ID: 1

Type: **not specified**

Theory of Charm CP Violation

Wednesday 11 February 2026 11:55 (50 minutes)

Charm CP violation is a unique gate to the flavour structure of up-type quarks and allows for searches for physics beyond the Standard Model in new and exciting ways, complementary to kaon and b decays. After its discovery by LHCb in 2019, we are still at the beginning of the exploration of the nature of the violation of CP by charm quarks. We discuss the most recent developments which allowed for the first time the study of the U-spin anatomy of CKM-subleading amplitudes, focussing on model-independent, symmetry-based methods. We describe in detail how to determine if a consistent picture will emerge and give an outlook on the next challenges at the intensity frontier of charm physics.

Presenter: SCHACHT, Stefan**Session Classification:** Charming Theory

Contribution ID: 2

Type: **not specified**

Recent charm results from LHCb

Wednesday 11 February 2026 14:00 (50 minutes)

From its humble beginnings as a 3-channel mixing measurement to be parasitically performed with RICH calibration samples, the charm physics programme at LHCb expanded in scope to what is now a major component of LHCb's contribution to science. Now with the largest samples of charmed hadrons ever produced (that continue to grow!), LHCb is providing insight into the physics of charm with unrivaled precision. I will discuss recent results from this world-leading programme.

Presenter: SPRADLIN, Patrick (University of Glasgow)

Session Classification: Charm Physics from LHCb

Contribution ID: 3

Type: **not specified**

The short lifetime of charm

Wednesday 11 February 2026 16:25 (50 minutes)

50 years after the discovery of the first charmed particle, charm physics continues to be an extremely lively field of research and a cornerstone in particle physics. The study of charm, with its unique properties, is characterised by many challenging but also exciting peculiarities, making it an ideal testing ground for Standard Model (SM) predictions and a very sensitive probe of new physics.

In this talk we will discuss the current status of the theoretical and experimental determination of lifetimes of charm hadrons and also of quantities related to D-mixing.

Presenter: LENZ, Alexander (IPPP, Durham)

Session Classification: Heavy Flavour Theory

Contribution ID: 4

Type: **not specified**

Higgs to tau and charm

Wednesday 11 February 2026 11:05 (50 minutes)

Presenter: FOX, Harald (Lancaster University)

Session Classification: Higgs, Charm and Tau physics

Contribution ID: 5

Type: **not specified**

Charm Quark Mass from Lattice QCD

Wednesday 11 February 2026 14:50 (50 minutes)

Lattice QCD has entered a precision era in the charm sector, with predictions for the charm quark mass available at percent level precision. Uncertainties are now dominated by systematic effects arising from discretisation and renormalisation. We present two novel approaches for controlling these effects: a massive momentum-subtraction scheme, and gradient flow combined with short-flow-time expansion. We introduce the theoretical bases of these schemes, discuss perturbative matching to $\overline{\text{MS}}$, and finally present precise determinations of the charm quark mass.

Presenters: BLACK, Matthew (University of Edinburgh); MUKHERJEE, Rajnandini (University of Edinburgh)

Session Classification: Charm quark mass from lattice QCD

Contribution ID: 6

Type: **not specified**

Displaced tau jets: An exercise in unconventional signatures at the ATLAS experiment

Wednesday 11 February 2026 16:10 (15 minutes)

Searches for new beyond the Standard Model (BSM) physics at the ATLAS experiment typically target particles that decay promptly, very close to the collision point. New physics has so far evaded these searches. Multiple BSM models predict new long-lived particles (LLPs) that are produced at the interaction point with decay lengths ranging from millimetres to kilometres. In new physics scenarios where LLPs couple preferentially to heavy particles or to leptons, tau lepton final states would offer high experimental sensitivity. Highly displaced tau decays can be reconstructed if the LLPs decay within the ATLAS inner tracking system, providing a unique probe for new physics. The methods used to search for this unconventional signature are discussed in contrast to typical collider physics analyses.

Presenter: VELTMAN, Alex (The University of Edinburgh)