



This is already the last day of the conference! We'll again look forward to today's programme and yesterday's highlights, and introduce you to the upcoming *Gentse Feesten*.

Today's programme

The first part of the morning session will focus on heavy ions, QCD matter, quark-gluon plasma, and the ALICE experiment. Later we will hear the latest updates on cosmology and future astroparticle facilities.

The afternoon session will be devoted to data-analysis techniques and to accelerator and detector R&D for a variety of future experiments.

The EPS-HEP 2019 programme will conclude with the highlights of the conference and the announcement of the next edition in 2021.

Practicalities

Please take note of the following practicalities:

1. Please take down your posters before/during lunch. The poster boards will be removed after lunch.
2. If needed, you can leave your luggage during the day in the cloakroom on the left when you enter the ICC.

Highlights from Tuesday

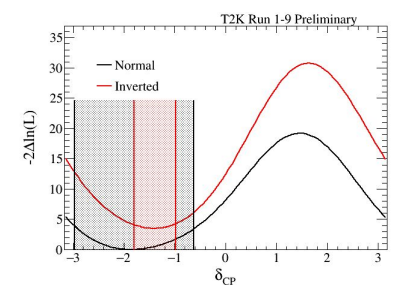
The morning started with latest results from the LHCb experiment, including i.a. CP violation results, tests of lepton universality, and discovery of several new states. Also ATLAS and CMS join LHCb, e.g. regarding rare B decays and tests of lepton universality. An interesting pattern of flavour anomalies still persists! Attention then turned to e^+e^- results from BESIII and BaBar/Belle, along with first results from Belle-II. A theoretical view completed the picture, focusing on flavour physics as a new physics probe. We now await more LHC Run2 results, the start of the upgraded LHCb detector and key physics results from Belle-II.

Next, the results from Ligo-Virgo were reviewed, highlighting the birth of multimessenger astronomy. The data collected are also used to access fundamental physics. The astroparticle perspective also underlined multimessenger physics. Neutrino astronomy with IceCube saw a neutrino measurement in conjunction with gamma rays in the MAGIC detector and 18 astronomical observatories, giving first compelling evidence for a non-stellar neutrino source: a Blazar. This strongly motivates the need for next generation detectors in this field. To conclude, the positron and antiproton spectra from AMS-02 were highlighted, along with measurements of UHECR and insights in their composition.

In the afternoon, a neutrino overview started from the current anomaly status. Highlights were the comparisons of Double Chooz, RENO and Daya Bay, the rich programme of very short baseline experiments, and the next frontier experiment, JUNO.

Neutrinos from particle beams were next. Current results from T2K and NOvA were presented, with a focus on leptonic CP violation, MicroBooNE and T2K results on neutrino-nucleon interactions, and future sensitivities of DUNE and HK. Sterile neutrinos and other BSM physics at current and future experiments were presented, highlighting the importance of the CERN neutrino platform.

From a theoretical perspective, the determination of a New Standard Model explaining neutrino masses is the ultimate goal. We need to understand the origin of neutrino masses and their properties, by means of a rich experimental programme.



Dark matter searches were reviewed from the complementary direct and indirect detection, and accelerator perspectives. Direct detection approaches the neutrino floor, prompting interesting proposals with directional sensitivity. A revived fixed target program aims at exploring sub-GeV dark matter.

Next, the status on searches for axions was given, with light-shining-through-wall experiments like ALPS-II, and tunable haloscopes like ADMX producing new results. For solar axions, we look forward to BabyIAXO. Overall, a large fraction of parameter space is in reach.

The session concluded with a theory perspective on the vast field of dark matter. The concept of ultra-light fuzzy dark matter was highlighted, already constrained by EHT's recent observation of the M87 black hole.

Did you know?

In the last few days, you have probably noticed that the centre of Ghent is being set up with numerous stages and gazebos, including a large arena on the Leie river, between the Graslei and Korenlei. This is in preparation for the **Gentse Feesten** (Ghent Festivities), one of the largest



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cultural festivals in Europe, which will start this Friday, 19 July and last until Sunday, 28 July. If you plan on sticking around a few extra days after the conference, you must absolutely check it out!

Every July, for 9 days, Ghent turns into a massive open-air stage, with free music, international artists, entertainment for kids and adults, and hundreds of cultural events. Stages are located in all the main squares downtown, in the parks, and in many other places, extending over an area of almost 1 km². Over 100 thousand visitors every day are attracted to Ghent to enjoy free concerts of their favourite genres, watch a street show or a theater piece, drink a few beers and try some tasty street food, and just have a great time!

Music never stops at the *Feesten*. Many stages play until 3 AM, and a few clubs keep partying until morning, when a new day begins with activities and entertainment for children. No matter what music you like, you will certainly find it here!

Picture of the day

After a full day of sessions, it was time for the conference dinner. We hope you enjoyed it!

