

Heavy Ions and New Physics

Thursday, 20 May 2021 - Friday, 21 May 2021

ECT* - European Center for Theoretical Studies in Nuclear Physics and Related Areas

Scientific Programme

Scientific goals of the meeting

The goal of the workshop is to provide a platform for an open discussion of the potential to search for New Physics in heavy ion collisions. Specific topics include:

What signatures can be searched for?

What new particles can be found?

Which new exotic phenomena in the Standard Model can be probed?

Which ions should be used?

How can the integrated luminosity in heavy ion runs be optimised?

How can the experimental triggers be optimised?

How can one exploit the absence of pile-up in heavy ion collisions?

Are there well-motivated hardware modifications?

What are the implications for future colliders?

Based on the discussions we plan to form working groups to coordinate future research.

Outline of the programme

The programme will last one week. Each day will consist of one morning and two afternoon sessions. The morning session and the first afternoon session will host 2-3 longer plenary talks each. Based on our experience with the kickoff workshop we will leave room for extended discussions between the talks. The second afternoon session is reserved for discussions in smaller working groups and short presentations.

The topics to discuss include

Heavy ion collisions at the HL-LHC (including detector developments and light-ion species)

Photon-photon (ultraperipheral) collisions

Axion like particles (and other light scalars)

Long lived particles

Sphalerons/Instantons

Born-Infeld theory

Magnetic monopoles

Sexaquarks

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