# Student events and efforts in Norway and at CERN

Eli Bæverfjord Rye, NorCC adm. coordinator



NorCC workshop 27.09.23



# **Student seminars**

- Arranged at noon the first Tuesday of each month
  - Indico: <u>https://indico.cern.ch/category/15568/</u>
- Want to give students and young researchers the opportunity to present their work to the Norwegian CERN community
  - Low-key seminars encouraged to present WIP or problems
- Sign up by contacting me on <u>eli.baverfjord.rye@cern.ch</u>

NorCC: Student/YR seminar	
Image: Tuesday 2 May 2023, 12:00 → 13:00 Europe/Oslo	
👤 Eli Baverfj	ord Rye (University of Oslo (NO)), Heidi Sandaker (University of Oslo (NO))
Description	NorCC wants to give young researchers and students the opportunity to present their work to the Norwegian CERN community. This takes place the first Tuesday of every month at noon. A round of discussion will follow each presentation.
Videoconference	P NorCC: Seminar series
There are m	inutes attached to this event. Show them.
Ti sp ra Ti ha th Ta re di <b>S</b> I	erformance of the ESS Target Imaging System under Nominal and Errant Scenarios Imaging Control of the European Spallation Source proton beam as it approaches the Target are critical to the facility operating at design becifications: producing the brightest neutron source in the world. The European Spallation Source will have one of the highest yet-achieved average over proton beams of 5 million Watts, requiring precise tolerances, efficient cooling, and shielding for everything around the Target due to high diation levels. The Target Imaging System takes a picture of the beam using light from a luminescent coating on the Target, excited by the protons his luminescence is a direct measurement of the beam profile. The image processing confirms whether the accelerator and beam shaping devices are produced the correct result. This work estimates the shape of the proton beam at the Target by numerical simulation of the beam as it passes around higherent parts of the accelerator and uses it for input to the beam profile processing. A scheme for quantifying different parameters of the accelerator malfunctions are compared with the expected beam profile to verify that the Target Imaging System can be any shaping devices the transfer to use intervent and nominal beams. Provide the Correct result. This work estimates the shape of the proton beam profile to verify that the Target Imaging System can be any shaping devices are produced the correct result. This work estimates the shape of the proton beam profile to verify that the Target Imaging System can be any shaping devices are provide and used to define the measurements of a nominal beam. Various simulated beams is transference. The Tackelman (Universitetet I Oslo) are can be any shaping devices are provide the correct result. This work estimates are compared with the expected beam profile to verify that the Target Imaging System can be any shaping devices are provide to the provide the provide to the provide
p ar as dy st	he University of Trondheim (NTNU) and CERN are currently involved in the development and design of a completely new cooling system that will be otentially employed after the upgrade of the LHC (Phase III). The presentation aims to give an insight of the current cooling technologies using CO2 nd illustrates the challenges to overcome by going colder in temperatures. An ejector-supported cycle using the noble gas Krypton is here presented, s well as the sketch of the test-rig using Xenon as demonstrator which is currently under construction in Trondheim. To prepare for the test campaign, ynamic modelling of the cycle is still ongoing to set a strategy to entirely fulfill the detector's requirements such as gradual cooldown and thermal nocks. peaker: Luca Contiero

# **Common courses**

- - Have already listed some relevant UiO courses on our webpage: https://norway.cern/nb/open-courses-norwegian-universities
- Long-term, we might want to create new, common courses

We want to facilitate that students in Norway can take courses across the NorCC institutions

Currently in contact with people from the study administrations of all NorCC institutions, collecting information on rules and deadlines, and asking for help to inform their students

# **Common PhD program**

- Eight collaborative NTNU and CERN PhD students started in 2019, based on a CERN-NTNU MoU for co-funding of technology PhD projects
  - Project topics include laser cooling of positrons, robots for maintenance of equipment, cooling systems for accelerators and detectors, field emission and breakdowns in high-field accelerating structures, ...
  - The students spend around half their time at CERN, and have both NTNU and CERN supervisors
- HVL and other institutions are very interested in building a similar program
- Currently in the process of finalizing a similar common PhD program with CERN for NorCC, covering all the NorCC institutions in Norway



# Screening week

- - event is held at IdeaSquare»
- HVL is in the process of starting up a similar concept
- Should we aim to offer this to all NorCC students?
  - A common screening-innovation-entrepreneur program was part of our 2021 research school application

# NTNU arranges a yearly screening week at CERN as part of their School of Entrepreneurship

• «Students from the NTNU School of Entrepreneurship spend one week at CERN identifying the commercial potential of CERN technologies, building prototypes and contacting investors. After four days of intense work they present their findings Friday morning. This

2023 event will be arranged the first week of October: <u>https://indico.cern.ch/event/1326553/</u>







# Summer@CERN

- Arranged for the first time in 2022: <u>https://indico.cern.ch/event/1104691/</u>
  - Two weeks, with academic and entrepreneurship focus, respectively
  - Very nice social program
  - The event received good feedback from the participants (including myself)
- Next event planned for 2024
  - Tentative dates: week 26 & 27
  - NB! Conflict with biannual NFS subatomic student event

**1st week Academic training** o Academic lectures on latest physics and technological developments o Visits at experiments and accelerators at CERN o Hands-on computing tutorial 2nd week Entrepreneur training o Master classes (Entrepreneur, Technology transfer, Green Village) o Hands-on technology training o Media training Social program: - Dinner, visit to Geneva, 1-day excursion, CineGlobe, ...

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# Other

- Forskerskole / Research school
  - Applied in 2021, not granted
  - Next opportunity is probably <u>INTPART</u>, no new call announced yet
- «Allmøter» at CERN
  - users located at CERN
  - We plan to arrange two such meetings a year, next one coming up very soon

We had an «allmøte» for Norwegians at CERN in March, discussing topics relevant for Norwegian fellows and staff, students taking part in CERNs student programs, as well as

**Comments and discussion**