

HK 22: Plenary IV

Time: Tuesday 11:00–13:00

Location: Audi-Max

Invited Plenary Talk HK 22.1 Tu 11:00 Audi-Max
LHC Experiments and Physics — ●PETER JENNI — CERN, Geneva, Switzerland

After more than 15 years of design and construction efforts the LHC and its experiments are finally starting operation. Besides the giant accelerator, which is installed in a ring tunnel of 27 km length about 100 m underground, the not less impressive and complex detectors are ready for data taking. In this talk the status and the physics expectations of the three pp experiments ATLAS, CMS and LHCb will be reviewed (note that the heavy ion programme and its dedicated experiment ALICE will be covered separately). The LHC will allow them to explore fundamental physics questions like: why have particles a mass, what is the non-visible dark matter in the Universe, are there more than four dimensions in Nature, what are the smallest building blocks of matter? The expectations for new discoveries are high, since decades physicists are eagerly awaiting this exploratory step into unknown territory.

Invited Plenary Talk HK 22.2 Tu 11:45 Audi-Max
Cosmic Matter in the FAIR Laboratory — ●HORST STOECKER — GSI, Darmstadt, Germany

An overview of the international project, FAIR (Facility for Antiproton and Ion Research), at Darmstadt will be given, including the lay-out and performance characteristics of the facility as well as the science programs to be addressed. Particular focus will be laid on research activities that aim at studying 'Cosmic Matter', i.e. extreme states of matter in hadron, nuclear and plasma physics. Moreover, the status of the project and the schedule for realizing the new facility in

international cooperation will be discussed.

Invited Talk HK 22.3 Tu 12:30 Audi-Max
SPIRAL2 at GANIL: Next Generation of ISOL facility for intense secondary radioactive ion beams — ●SYDNEY GALES — GANIL (DSM-CEA/IN2P3-CNRS) Blvd. Henri Becquerel, F-14076 Caen cedex, France

During the last two decades, secondary Radioactive Ion Beams (RIB) has allowed the investigation of a new territory of nuclei with extreme N/Z called *terra incognita*. The quest for Rare Isotope Beams (RIB), which are orders of magnitude more intense than those currently available, is the main motivation behind the design and construction of the next generation of RIB facilities. As selected by the ESFRI committee, the next generation of ISOL facility in Europe is represented by the SPIRAL2 project to be built at GANIL (Caen, France). SPIRAL 2 is based on a high power, CW, superconducting LINAC, delivering 5 mA of deuteron beams at 40MeV (200KW) directed on a C converter+ Uranium target and producing more 10¹³ fissions/s. The expected radioactive beams intensities in the mass range from A=60 to A=140, will surpass by two order of magnitude any existing facilities in the world. These unstable atoms will be available at energies between few KeV/n to 15 MeV/n. The same driver will accelerate high intensity (100*A to 1 mA), heavier ions up to Ar at 14 MeV/n. Under the 7FP program of European Union called*Preparatory phase* , the SPIRAL2 project has been granted a budget of about 4M€ to build up an international consortium around this new venture. The status of the construction of SPIRAL2 accelerator and associated physics instruments in collaboration with EU and International partners will be presented.