

T 75: Eingeladene Vorträge (Invited Topical Talks) VI

Time: Thursday 14:00–15:30

Location: Td

Invited Topical Talk T 75.1 Thu 14:00 Td
Hunting dark matter on earth and in the sky — •KAI SCHMIDT-HOBERG — DESY

I will discuss recent developments in dark matter research with a particular focus on light dark matter. After a quick overview I will concentrate on complementary search strategies including astrophysical as well as collider based experiments with a particular focus on the complementarity between different searches.

Invited Topical Talk T 75.2 Thu 14:30 Td
Gravitational wave astronomy: highlights so far and future detectors — •DAVID S. WU — Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Hannover, Germany

The first three observation runs from the advanced (2nd) generation of gravitational wave detectors (GWDs) have opened the doors to the era of gravitational wave astronomy and provided fantastic and partly unexpected scientific results. Upgrades to the current detectors and especially planned future ground-based GWDs such as the Einstein Telescope and Cosmic Explorer will improve the sensitivity limitations of the current detectors by more than an order of magnitude. This increased sensitivity of future GWDs will open a scientific treasure trove

and help answer some of the important open questions of cosmology and astrophysics.

Invited Topical Talk T 75.3 Thu 15:00 Td
Advanced Powering of Pixel and Tracking Detectors — •MARTIN LIPINSKI — I. Physikalisches Institut B, RWTH Aachen University, Germany

Modern pixel and tracking detectors like the ones foreseen in the upgrades of the LHC experiments require novel power systems. On the one hand, an increasing number of active channels as well as higher data rates lead to a larger power consumption of the detectors. On the other hand, the supply voltages must decrease due to smaller technology nodes used for the frontend electronics. Advanced powering schemes are required to avoid large cable losses and to keep the material budget small.

In this talk, two different powering concepts, based on DC-DC conversion and based on serial powering, will be discussed. The implementation of both schemes in the future Phase-2 upgrades of the ATLAS and CMS silicon tracking detectors will be presented. In addition, the experience gained from the use of DC-DC converters in the CMS Phase-1 pixel detector will be reported.