

## Charm physics in NA61/SHINE

*Saturday 6 January 2018 10:30 (30 minutes)*

NA61/SHINE (SPS Heavy Ion and Neutrino Experiment) is a fixed-target experiment operating at the CERN SPS accelerator. The main goal of the Collaboration is to study the properties of the phase transition between confined matter and quark-gluon plasma by performing a two-dimensional scan of the phase diagram of strongly interacting matter. Within this program, collisions of different systems (p+p, Be+Be, Ar+Sc, Xe+La, Pb+Pb) over a wide range of beam momenta (13A-158A GeV/c) have been recorded.

Recently, the physics program of NA61/SHINE was extended by measurements of open charm production in A+A collisions which is the main goal of NA61/SHINE beyond 2020. In order to meet the challenges of the required spatial resolution of primary and secondary vertex reconstruction, the detector was upgraded by a micro vertex detector. A Small-Acceptance version of the Vertex Detector (SAVD) was successfully commissioned in December 2016 and first pilot data were collected for Pb+Pb collisions at a beam momentum of 150A GeV/c. During Long Shutdown 2 the detector will be upgraded to a Large Acceptance Vertex Detector (LAVD) the layout of which is still under discussion. This contribution will present the motivation of open charm studies as well as the current status and details of the analysis of the collected Pb+Pb data. The future project of the LAVD will be also discussed.

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**Session Classification:** Session 1