Contribution ID: **398** Type: **Poster**

The NA60+ experiment at the CERN SPS to study dilepton and heavy quark production at large μ_B

Friday, 8 July 2022 20:10 (20 minutes)

The region of high baryonic densities (μ_B) of the QCD phase diagram is the object of several studies, focused on the investigation of the order of the phase transition and the search for the critical point. The rare probes, which include electromagnetic observables and heavy quark production and which are experimentally challenging to access as they require large integrated luminosities could be studied with fixed-target experiment. A future experiment, NA60+ at CERN, is being proposed to access this region and perform accurate measurements of the di-muon spectrum from threshold up to the charmonium region, as well as a study of charm and strange hadrons. The CERN SPS can cover, with large beam intensity, the collision energy region $5 < \sqrt{s} < 17$ GeV, which was scarcely studied until now with rare observables. The proposed experiment includes a muon spectrometer, based on tracking gas detectors (GEM, MWPC) coupled to a vertex spectrometer based on Si detectors (MAPS). The time slot after the Long Shutdown 3 of the LHC (>2027) is foreseen for the first data taking, with Pb and proton beams.
In this contribution we will review the project and the recent R&D, including the technical aspects as well as the studies of the physics performances for the observables.

In-person participation

Yes

Primary author: BORYSOVA, Maryna (WIS)

Presenter: BORYSOVA, Maryna (WIS)

Session Classification: Poster Session

Track Classification: Detectors for Future Facilities, R&D, novel techniques