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Dilepton production in p+p at 1.58 and 4.5 GeV beam kinetic energy

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Spectra of inclusive dileptons emitted in hadron collisions are crucial in studying the electromagnetic structure of resonances by constraining model descriptions and validating the commonly used assumption of the Vector Meson Dominance.
While interesting in its own right, this provides a decisive input to theoretical understanding of QCD matter at extreme conditions of temperature and/or density, investigated in heavy-ion and $p + A$ collisions.
On the experimental side, $p + p$ (and $n + p$) results constitute a baseline for separating cold or hot medium effects.

The High-Acceptance DiElectron Spectrometer (HADES), operating at the Heavy-Ion Synchrotron (SIS18) in Darmstadt, Germany, is a fixed-target, multi-purpose setup. It has been specifically designed for high precision dilepton measurements, but it is also well capable of reconstructing hadronic observables in proton-, deuteron-, and pion-induced or heavy-ion collisions in the energy regime of a few GeV.

In this contribution, preliminary results on dilepton spectra in proton-proton collisions at 1.58 and 4.5 GeV beam kinetic energy, measured in February 2022, will be presented and compared with available model calculations.
They will also be put in the context of the measurements in Au+Au and Ag+Ag collisions.

Collaboration

HADES

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