

NA61/SHINE: 2007–2018

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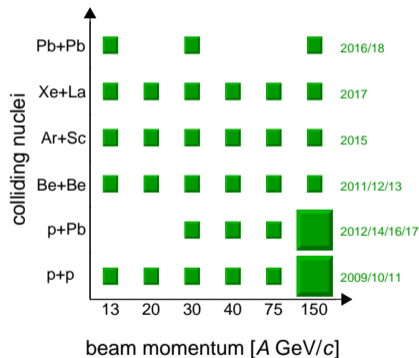
PS/SPS Users Meeting, December 6, 2018

NA61/SHINE: overview

- First data collected in 2007
- Programme involving three physics communities:
 - ▶ Study of strongly interacting matter
 - ▶ Precision measurements for neutrino experiments
 - ▶ Precision measurements for cosmic ray experiments
- Data taking requested in the proposal to be concluded on Monday
- New measurements requested in 2021–2024
- Important detector upgrades planned for LS2

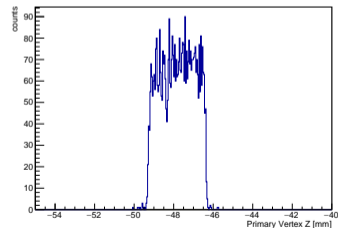
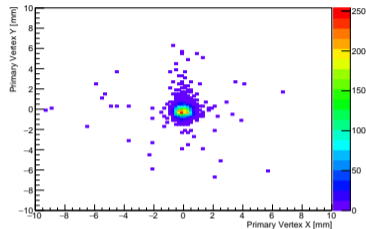
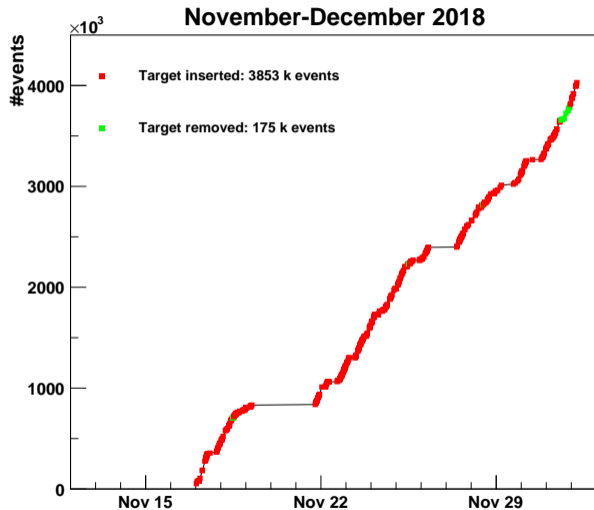
Study of strongly interacting matter

Unique two-dimensional scan in system size and collision energy



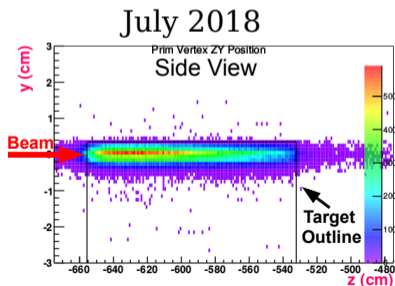
- Study of onset of deconfinement
 - ▶ p+p unexpectedly similar to Pb+Pb
 - ▶ rapid system size dependence
- Search for critical point
 - ▶ Exciting results of intermittency analysis
- Search for pentaquarks
 - ▶ None found so far!
- Study of high- p_T phenomena
 - ▶ Analysis in progress
- Study of open charm production
 - ▶ Pilot measurement, to be fully realised after LS2

Pb+Pb at 150A GeV/c data for open charm measurement



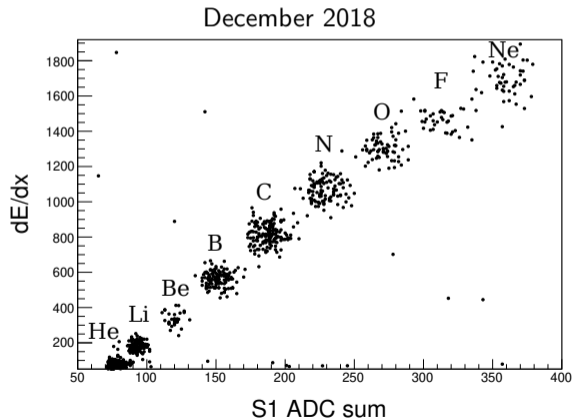
Precision measurements for neutrino experiments

- p+C and p+T2K 90 cm replica measurements
 - ▶ significant reduction of T2K systematic uncertainties
- Numerous cross section measurements for Fermilab future neutrino beams:
 - ▶ beam interactions with future targets
 - ▶ produced pion interactions with horn magnets
 - ▶ proton interactions on 130 cm NO ν A target replica
- Measurements to be continued after LS2



Precision measurements for cosmic-ray experiments

- $p+C$ and $\pi^+ + C$ measurements for Pierre Auger Observatory
- Ongoing test measurements of fragmentation cross sections of galactic cosmic rays open way for physics measurements after LS2



**We would like to thank
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