





Overview activities: PWG Inclusive Hadron Analysis







Status last CM

δ electron correction: last cross checks in Au+Au  

Au+Au 1.23 AGeV

- Pion analysis:
 - Meeting with FOPI activists
 - Investigations by Chris  



Ag+Ag

- Hypernuclei paper in the arxiv ✓  
- pions, p, light nuclei, K0s, L, Sigma0 yields ✓
Marvin's update  
- Sigma0/L paper: technical details and punchline  , see also next slide



BES

- Pions Joanna's update  

p+p 4.5

- K+,K- Carlo  

pi+C/PE 0.8

- Pions and p: Iza  , and Beatrice talk later today

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δ electron correction:

- Re-calculation of MDC layer eff. by Jochen for full consistency of the method (finished for mar19 May 1st.)

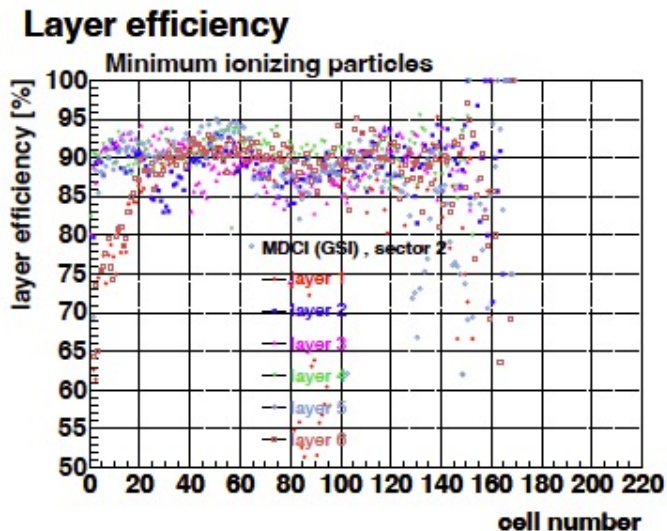
MDC/tracking performance corrections: 3 categories

δ -Electrons

Digitization of driftcell response

Modified by Simon and discussed in various talks*

Layer Efficiency: data driven estimation based on a clean data sample **but not using NStart==1**



automated (online) procedure planned in future, see talk. C. Wendisch

Next step recalculate Layer eff. for sample Nstart==1.

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Next steps:

- Re-run of pion and proton pt-y analysis for Au+Au 1.23 A GeV and Ag+Ag for evaluation
- Update reviewed analysis note

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Hypernuclei paper, referee comments received and included in new draft, waiting for green light from PBC

Sigma0/L paper: hyperon thermometer: draft written and send to PBC May 29th.

Fluctuations: Update from Marvin tomorrow with focus on exp. Input for model to data comparison

Δ -Resonance reconstruction, see talk from Emma tomorrow

K+,K- Carlos talk tomorrow

Pions and p: Iza, Beatrice
Paper writing committee established and writing has started.

Λ , Σ^0 production in Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV:

The Λ/Σ^0 yield ratio as hyperonic thermometer in Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV

All HADES members
(HADES Collaboration)
(Dated: May 29, 2026)

We report measurements of Λ and Σ^0 production in Ag+Ag collisions at $\sqrt{s_{NN}} = 2.55$ GeV with the HADES experiment at GSI/FAIR. The Σ^0 hyperon is reconstructed through its radiative decay $\Sigma^0 \rightarrow \Lambda\gamma$, while Λ hyperons are measured in the $p\pi^-$ channel. The decay photon is detected with the electromagnetic calorimeter, and machine-learning-based reconstruction enhances the signal extraction, enabling the first measurement of Σ^0 production in nucleus-nucleus collisions.

A total of about 6.5×10^3 Σ^0 hyperons are reconstructed. After subtracting the feed-down contribution from $\Sigma^0 \rightarrow \Lambda\gamma$, we obtain $R_{\Sigma^0\text{-sub}} \equiv \Lambda/\Sigma^0 = 3.1 \pm 0.5$ (stat) ± 0.7 (sys). Correcting for additional feed-down contributions within a statistical hadron-resonance-gas model yields $R_{\text{prim}} = 2.9 \pm 0.5$ (stat) ± 0.7 (sys).

Interpreted within a statistical ansatz, the Λ/Σ^0 ratio acts as a hyperonic thermometer, yielding a chemical freeze-out temperature of $T = 66_{-7}^{+11}$ (stat) $_{-8}^{+17}$ (sys) MeV.

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Piled-up not published pt-y analysis

Au+Au 1.23 AGeV

Ag+Ag

p, d, t, he³ (Simon)

p, d, t, he³

(Simon, Marvin N.)

Constraining bulk matter

π^{+-}

(Marvin N., Gosia,
Jan O.)

K^{+-} , ϕ , K_s^0 , Λ

(Marvin K., Simon)

Universal Apart scaling?

Ξ^-

(Simon)

Deep-subthreshold strangeness

Models:

Transport:
UrQMD, Smash ..

Statistical:
Thermalhist
(y distributions do not match)

Therminator
(hypersurface freezeout)
Main risk: dependence on external
deliverables and timeline

Published:

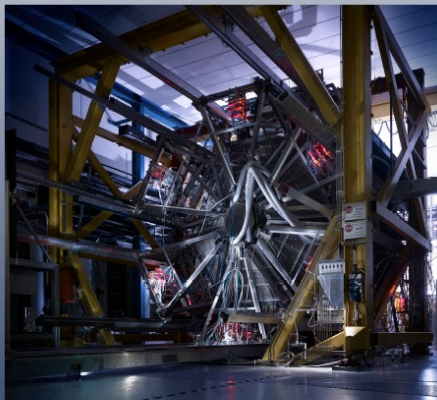
π^{+-} , K^{+-} , ϕ , K_s^0 , Λ

Future Beam Times:

Internal review for arxiv submission

π - QCD

The HADES Collaboration



Proposal for Experiments at the
GSI Pion Beam Facility

December 2024
Version 0.1

Pre-Announcement EMMI Workshop:
*Long-Baseline Neutrino Reference Measurements with Hadron
Beams at GSI/FAIR*
December 7-9th GSI



Organizer:

*Sara Bolognesi, Izabela Ciepal, Stephen Dolan, Manuel Lorenz,
Johan Messchendorp, Laura Munteanu, Frank Nerling*

<https://indico.gsi.de/event/25390/overview>



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π and also p, d

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Many thanks to all activists!

