Warsaw University of Technology

Faculty of Physics

Feasibility study of femtoscopic correlations of π mesons in the CBM experiment at FAIR/GSI

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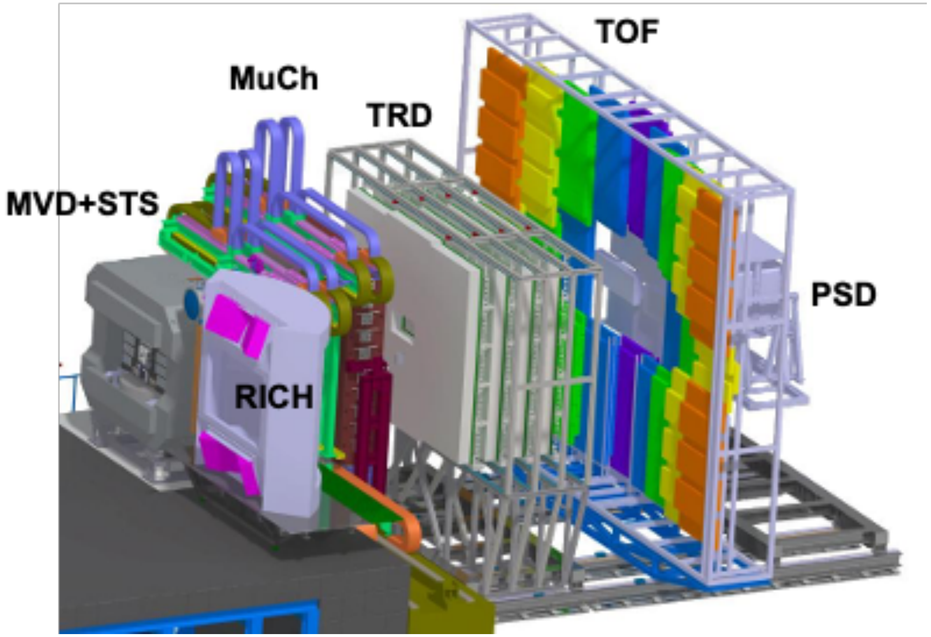
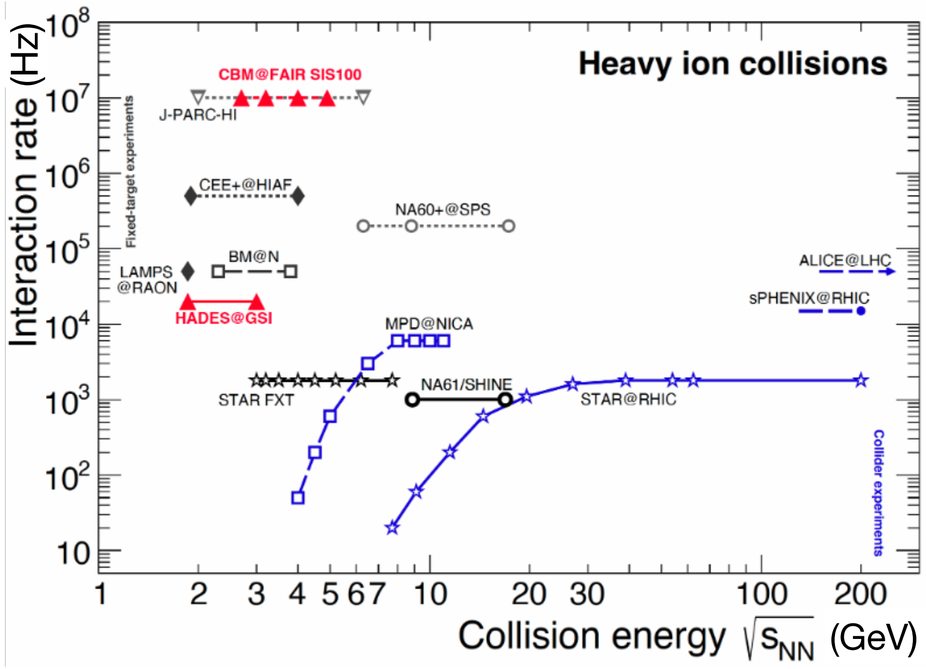
Compressed Baryonic Matter(CBM) experiment

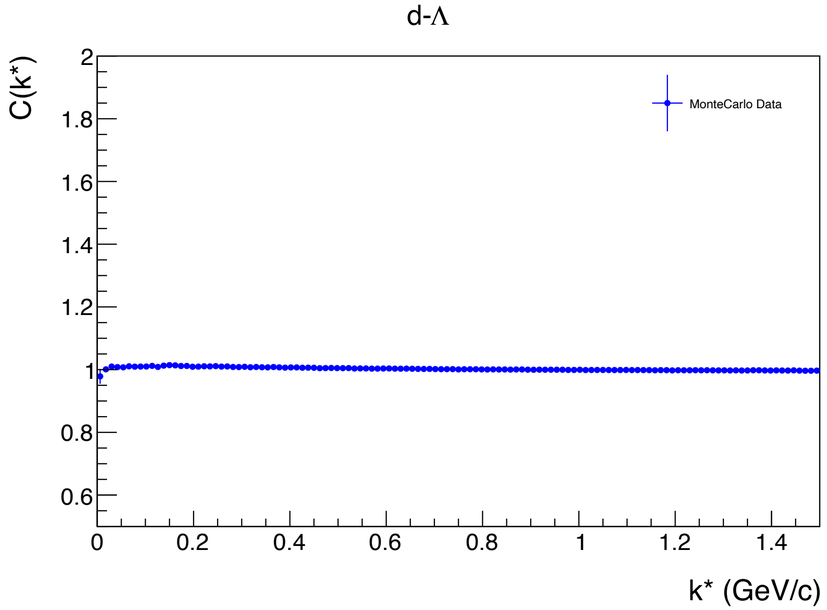


The goals of the collaboration:
Study the QCD phase diagram, phase transitions, look for critical point, study quark matter expected to exits within nuclear star cores.

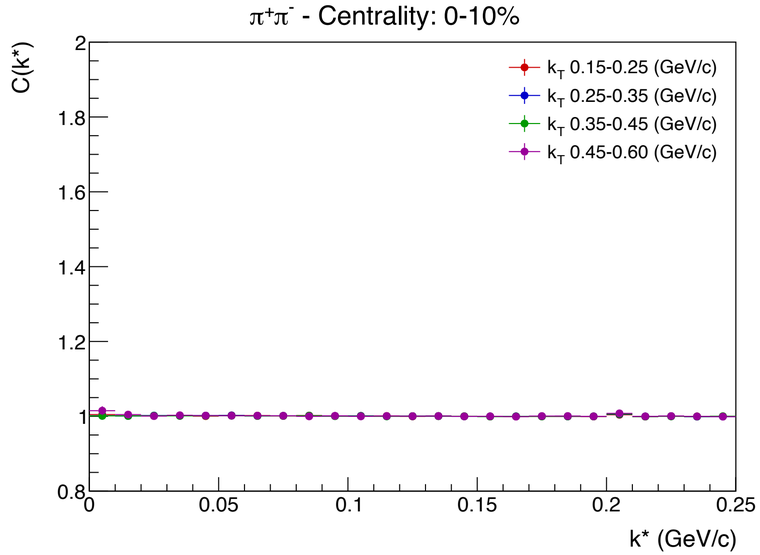
What sets it apart:
High baryon density, moderate temperatures, unprecedented interaction rate and data acquisition rate.



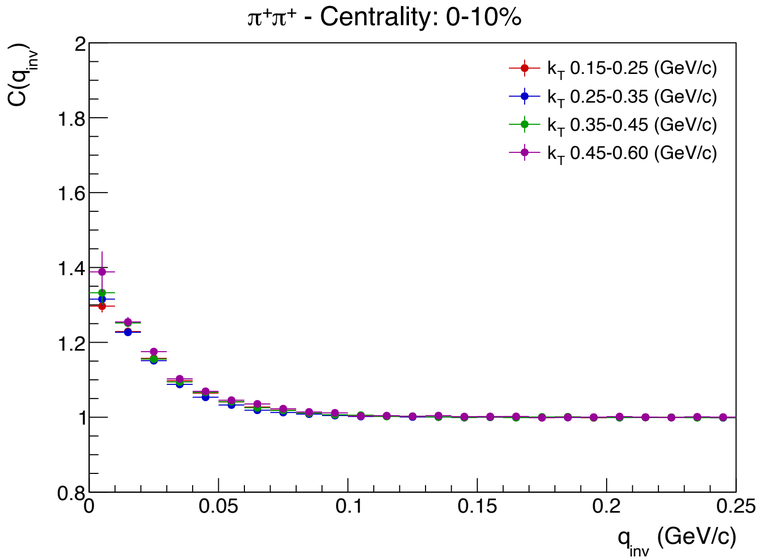
Feasibility study of femtoscopic correlations of π mesons and d-Λ



- Insight into strong interaction
- Understanding of deuteron production mechanisms
- Probing the inner structure of neutron stars
- Invaluable knowledge about the hypertriton ($^{3}_{\Lambda}H$) structure
- Nature of 3-body interactions of $^{3}_{\Lambda}H = p + \pi^{-} + d$ decay



- Validation of event generator models for $\pi^{+} - \pi^{+}$, $\pi^{-} - \pi^{-}$, $\pi^{+} - \pi^{-}$ and $d - \Lambda$ correlations in CBM.



- One-dimensional analysis utilizing Richard Lednický's weighting method for pions.