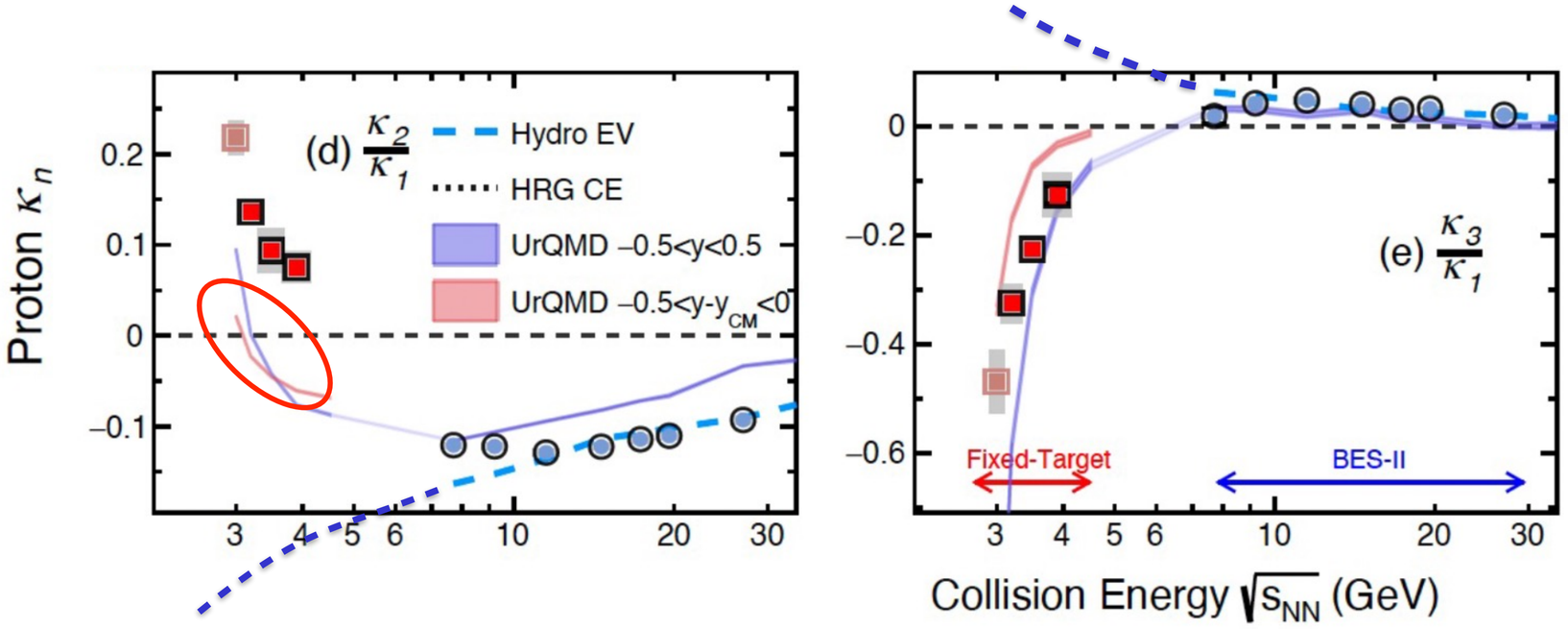
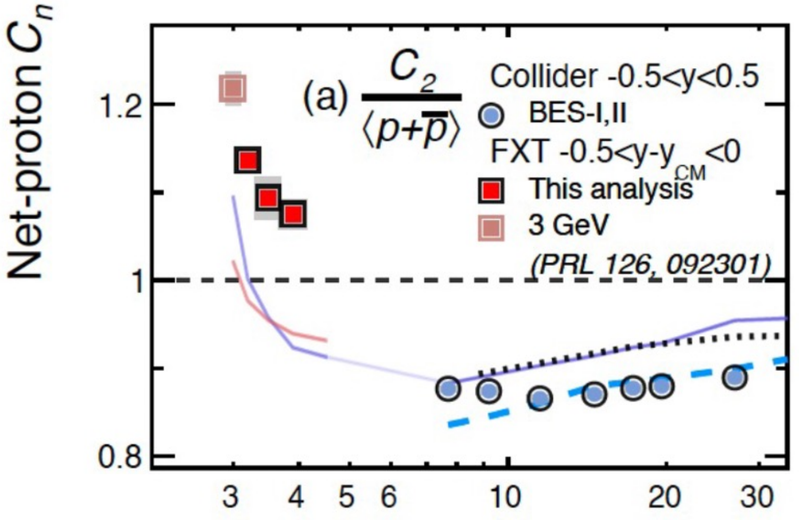
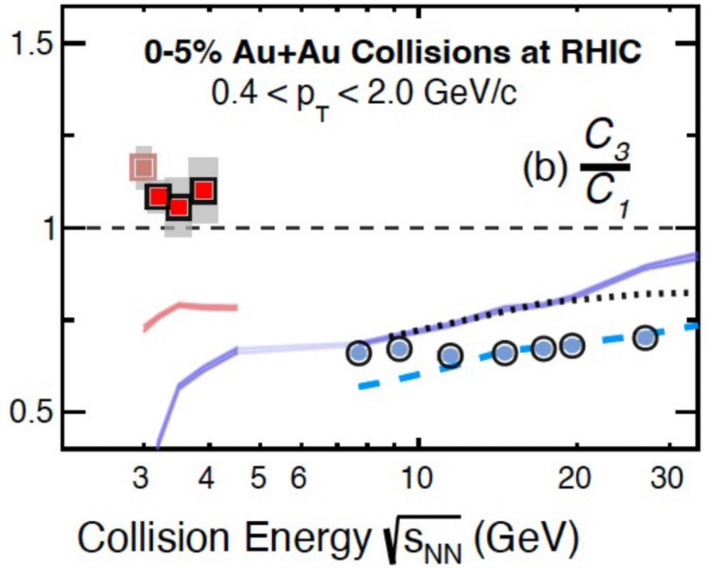
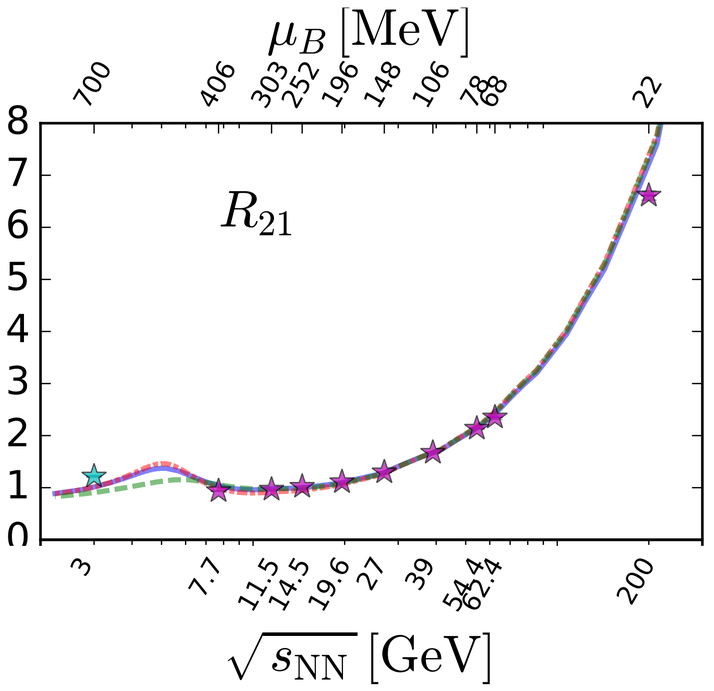
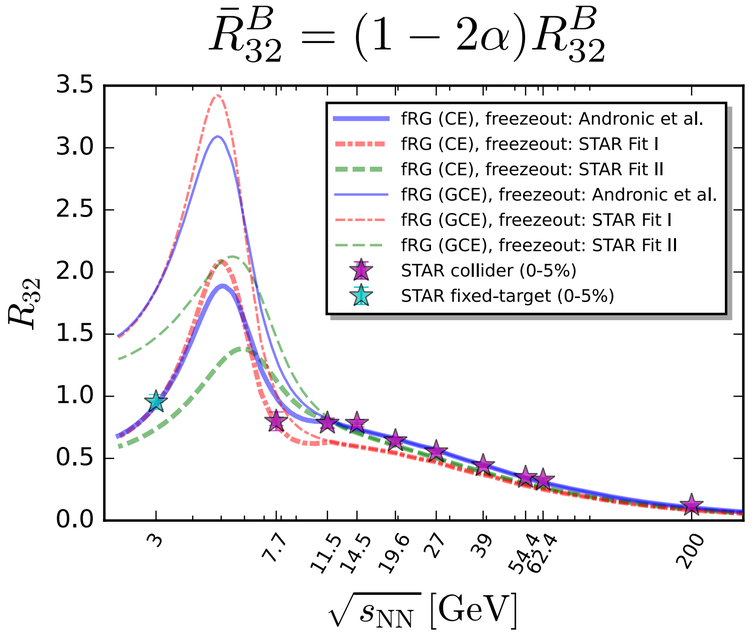
Fill the hole

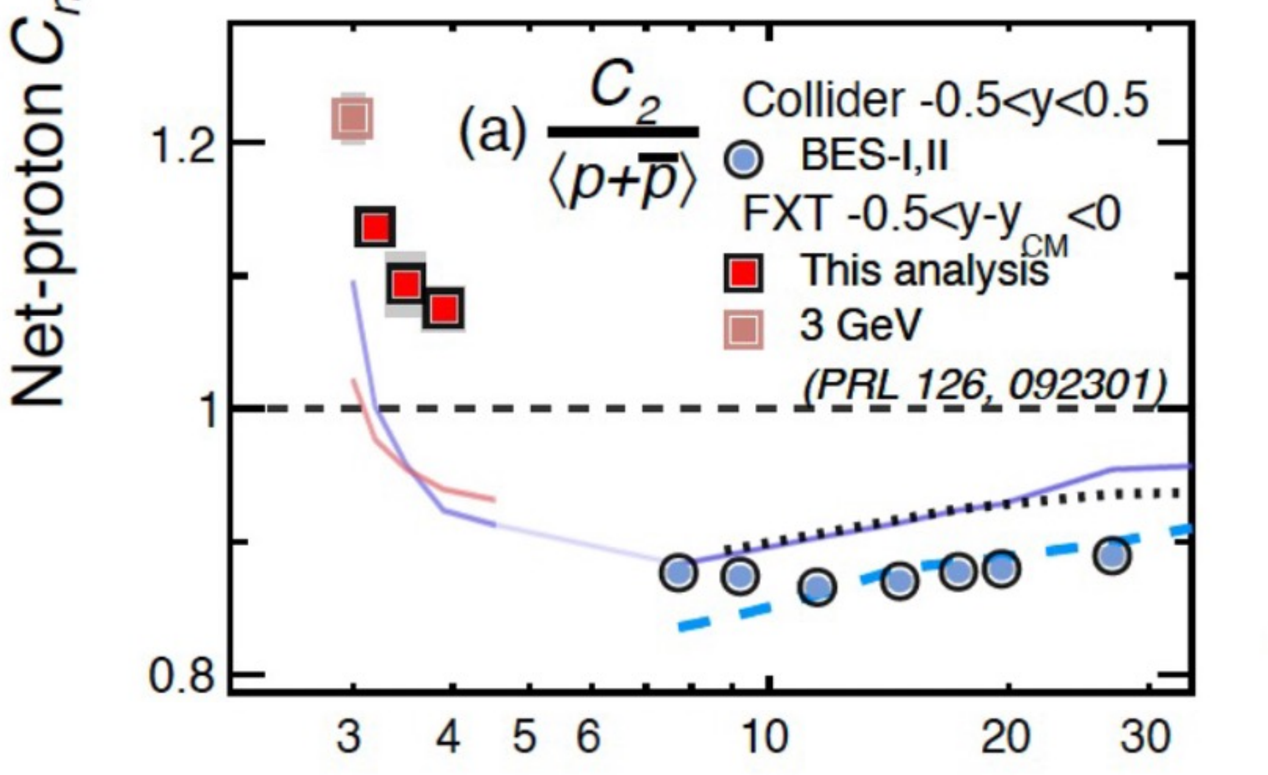



Net-proton C_n
(a) $\frac{C_2}{\langle p+\bar{p} \rangle}$
Collider -0.5<y<0.5
BES-I,II
FXT -0.5<y-y$_{CM}$<0
This analysis
3 GeV
(PRL 126, 092301)
1.2
1
0.8
3 4 5 6 10 20 30


0-5% Au+Au Collisions at RHIC
0.4 < p$_T$ < 2.0 GeV/c
(b) $\frac{C_3}{C_1}$
1.5
1
0.5
3 4 5 6 10 20 30
Collision Energy $\sqrt{s_{NN}}$ (GeV)


μ_B [MeV]
700 406 303 252 196 148 106 78 68 22
R_{21}
8 7 6 5 4 3 2 1 0
3 7.7 11.5 14.5 19.6 27 39 54.4 62.4 200
$\sqrt{s_{NN}}$ [GeV]


$\bar{R}^B_{32} = (1-2\alpha)R^B_{32}$
fRG (CE), freezeout: Andronic et al.
fRG (CE), freezeout: STAR Fit I
fRG (CE), freezeout: STAR Fit II
fRG (GCE), freezeout: Andronic et al.
fRG (GCE), freezeout: STAR Fit I
fRG (GCE), freezeout: STAR Fit II
STAR collider (0-5%)
STAR fixed-target (0-5%)
R_{32}
3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
3 7.7 11.5 14.5 19.6 27 39 54.4 62.4 200
$\sqrt{s_{NN}}$ [GeV]


Net-proton C_n
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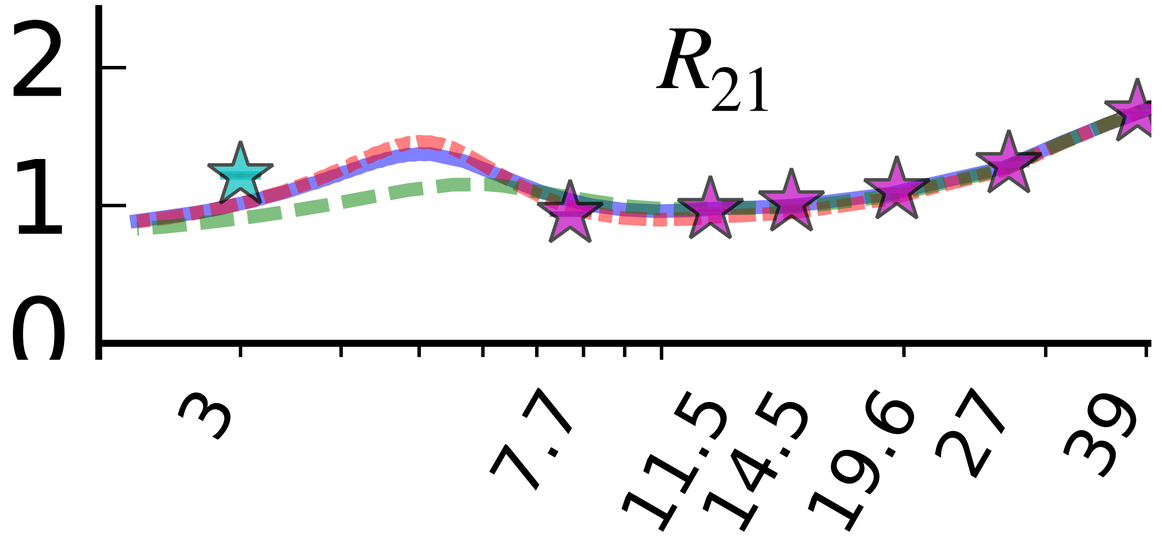
Collider -0.5<y<0.5
BES-I,II
FXT -0.5<y-y$_{CM}$<0
This analysis
3 GeV
(PRL 126, 092301)
1.2
1
0.8
3
4
5
6
10
20
30


R_{21}
2
1
0
3
7.7
11.5
14.5
19.6
27
39

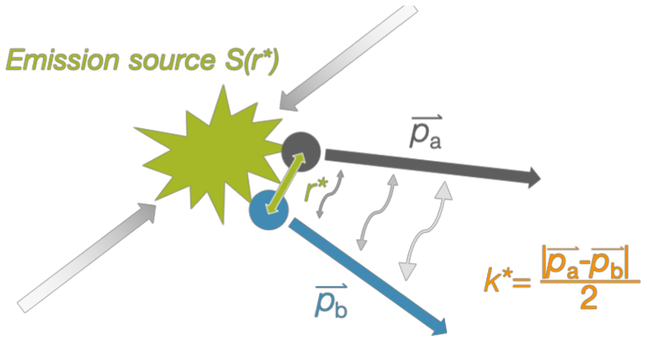
While CBM is getting ready

- Why doe URQMD (with out mean field and clustering) **qualitatively** describes the energy dependence of factorial cumulants

- Corrections for volume fluctuations: CBWC vs mixed events
  - STAR: please do mixed events to see if there give the same results

- Stochastic hydro, Hydro+: Will it be ready for realistic simulations by 2028?

Exploring hadronic interactions



Two-particle correlation function:

Model ***Experimental***

$$C(k^*) = \int S(\vec{r})|\Psi(\vec{k}^*,\vec{r})|^2 d^3\vec{r} = \frac{N_{same}(k^*)}{N_{mixed}(k^*)}$$

$S(\vec{r})$: *Source function*
$\Psi(\vec{k}^*,\vec{r})$: *Pair wave function*
$k^* = \frac{1}{2}|\vec{p}_a - \vec{p}_b|$, *relative momentum*
$\vec{r}$: *relative distance*

R. Lednicky, et al. Sov.J.Nucl.Phys.35(1982)770
L. Michael, et al. Ann.Rev.Nucl.Part.Sci. 55 (2005) 357-402

- Do all possible combination
  - $\Lambda + \{d, {}^3He, {}^4He, etc\}$
- Three particle correlations
  - $\Lambda + p + p$
- Etc

- Dileptons!!!