Checking Non-Flow Assumptions and Results via PHENIX Published Correlations in p+p, p+Au, d+Au, and ^{3}He+Au at $\sqrt{s_{NN}} = 200$ GeV [Phys. Rev. C 105, 024906 (2022)]

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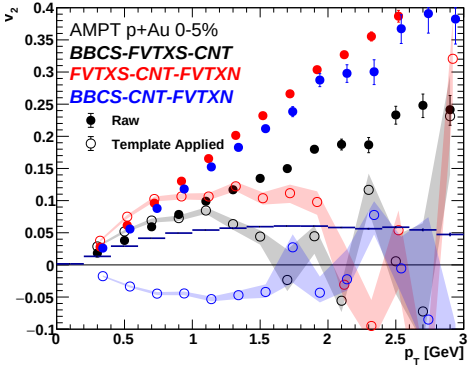
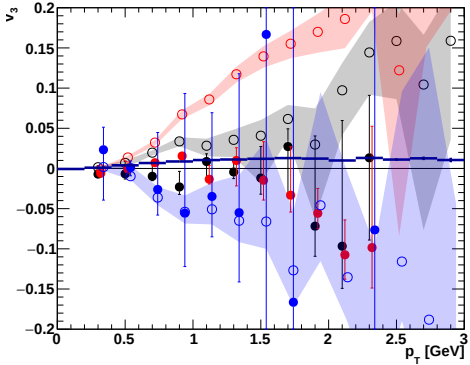
Ron Belmont (University of North Carolina at Greensboro)
Sanghoon Lim (Pusan National University)
Blair Seidlitz (Lawrence Berkely National Laboratory)

Quark Matter 2022
Poster Session
6 March 2022

Additional non-flow studies using published data tables

J.L. Nagle et al, Phys. Rev. C 105, 024906 (2022)





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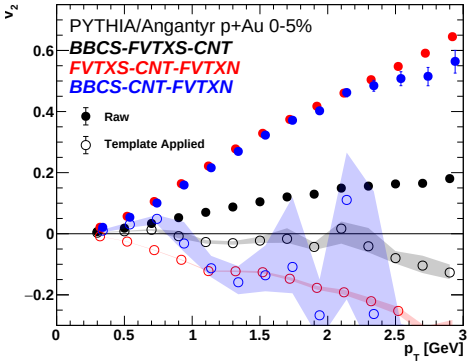

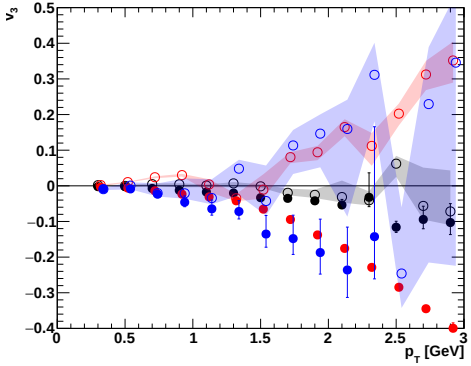

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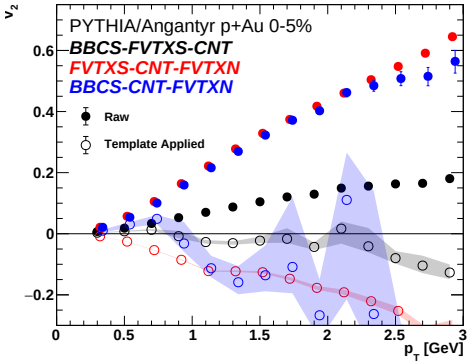

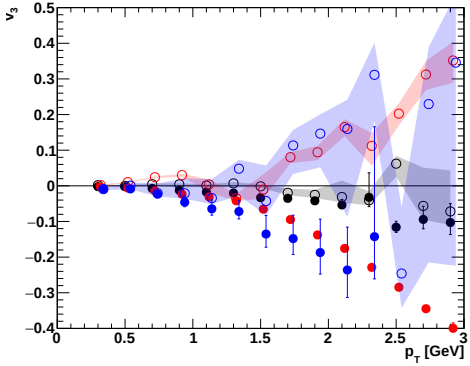

- Closure is considerably violated in AMPT and PYTHIA/Angantyr
- Since AMPT has too much non-flow and PYTHIA doesn't have any flow, the degree of overcorrection in real data is likely not as bad as it is with these generators

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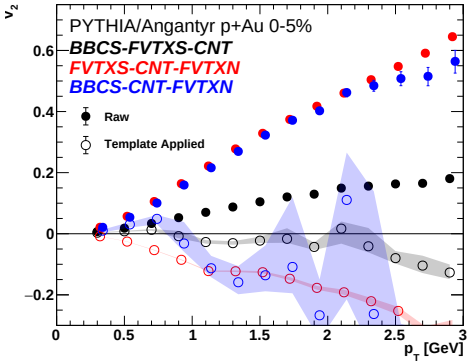

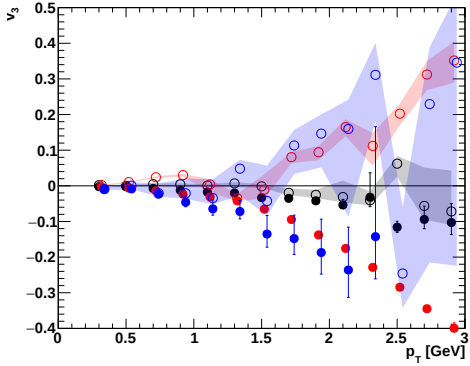

- Closure is considerably violated in AMPT and PYTHIA/Angantyr
- Since AMPT has too much non-flow and PYTHIA doesn't have any flow, the degree of overcorrection in real data is likely not as bad as it is with these generators
- Non-flow over-subtraction also explored in S. Lim et al, Phys. Rev. C 100, 024908 (2019)

Additional non-flow studies using published data tables

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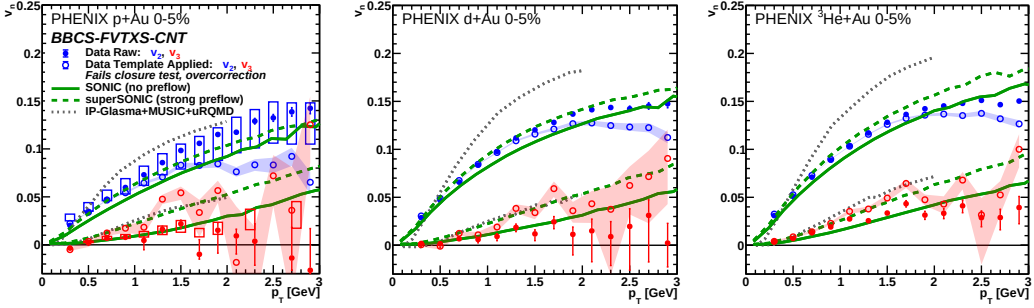

- Since the template method over-corrects the raw BBCS-FVTXS-CNT v_3, the truth is likely in between
- A firm understanding of this could shed a lot of light on various physics scenarios...

Additional non-flow studies using published data tables

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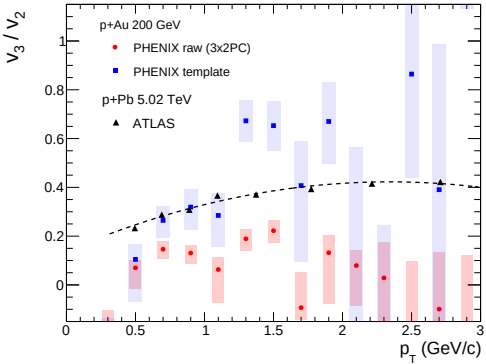

- The standard PHENIX v_3/v_2 is lower than the ATLAS, while the non-flow corrected is above

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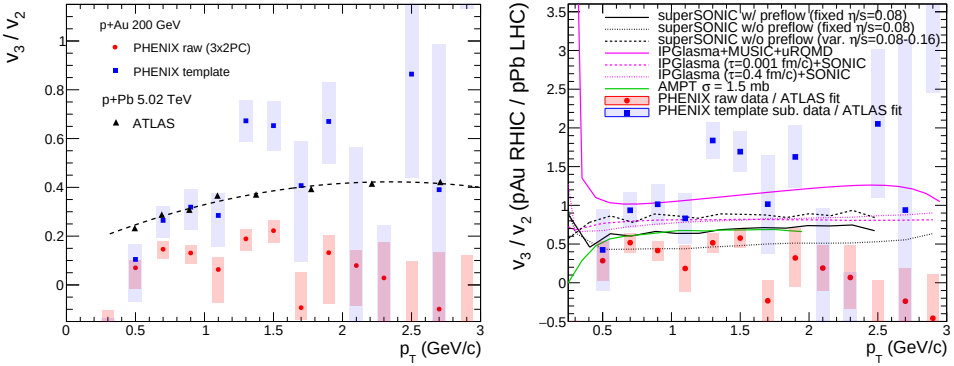
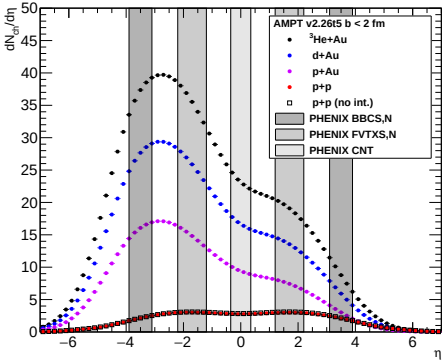
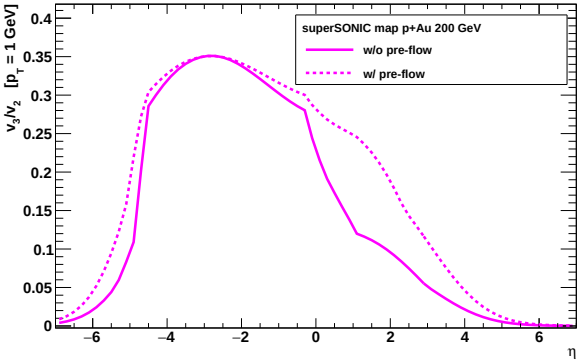


- The standard PHENIX v_3/v_2 is lower than the ATLAS, while the non-flow corrected is above
- The ratio is expected to be lower for lower collision energies in almost all physics scenarios —Lower energy, shorter lifetime, more damping of higher harmonics

Longitudinal dynamics in small systems

J.L. Nagle et al, Phys. Rev. C 105, 024906 (2022)



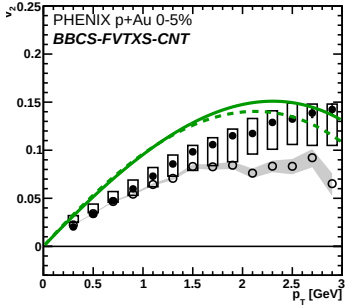


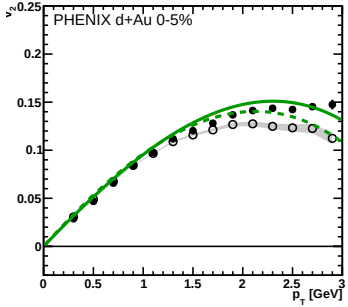
- $dN_{ch}/d\eta$ from AMPT, $v_3(\eta)$ from (super)SONIC
- The likely much stronger pseudorapidity dependence of v_3 compared to v_2 is an essential ingredient in understanding different measurements with different kinematic acceptance

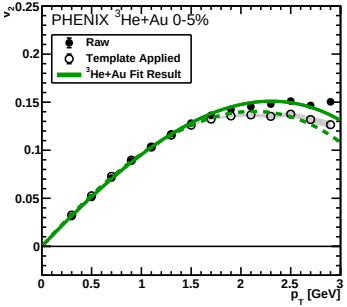
Extra Material

Additional non-flow studies using published data tables

J.L. Nagle et al, Phys. Rev. C 105, 024906 (2022)







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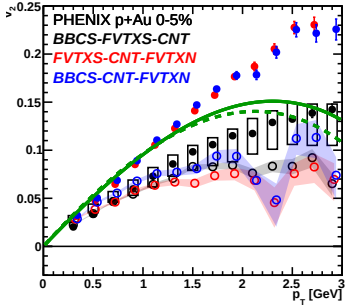

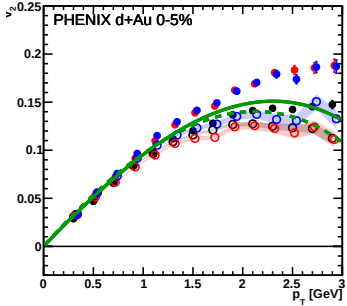

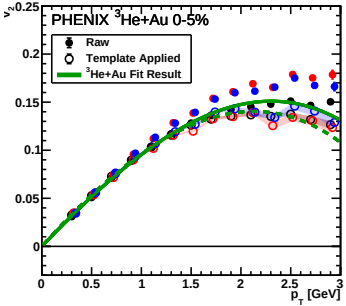

- The BBCS-FVTXS-CNT combination minimizes non-flow, so subtraction doesn't make too much difference
- The FVTXS-CNT-FVTXN combination has more non-flow, and the subtraction does much more
- That the three different combinations all line up after non-flow subtraction seems to lend some credence thereto, but one must be careful...

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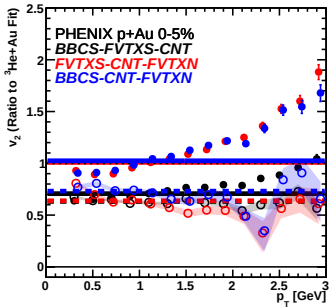

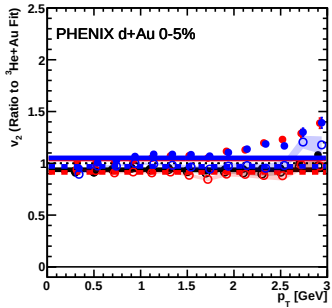

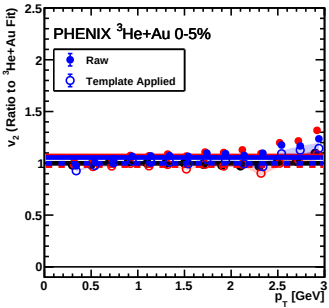

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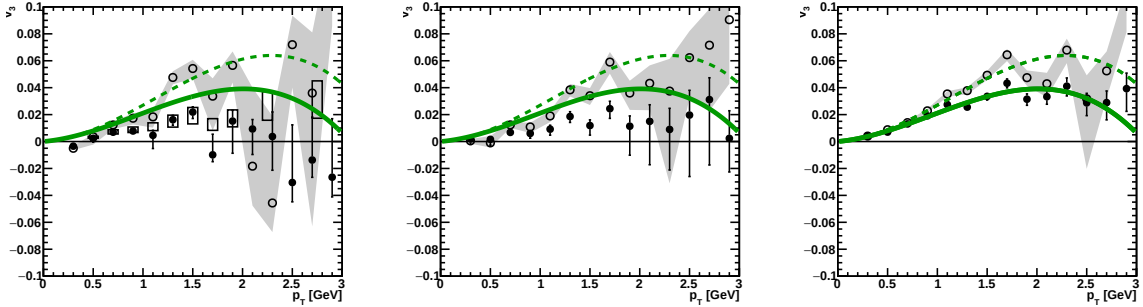

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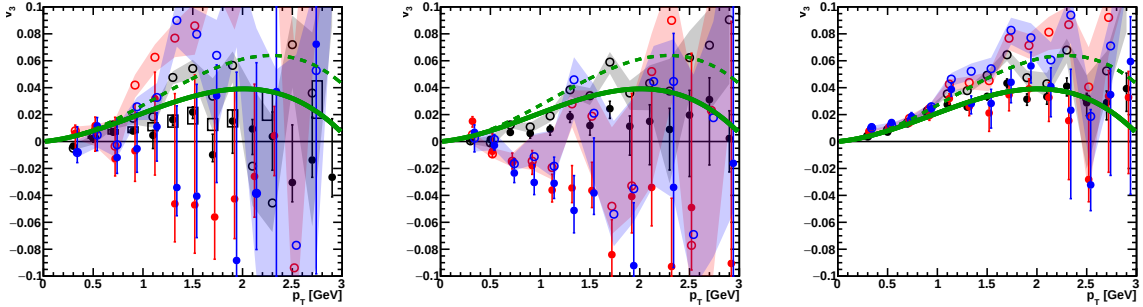

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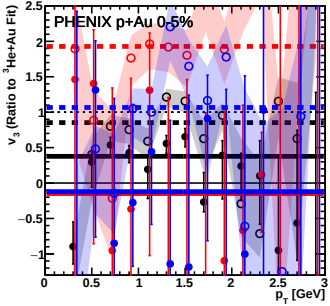

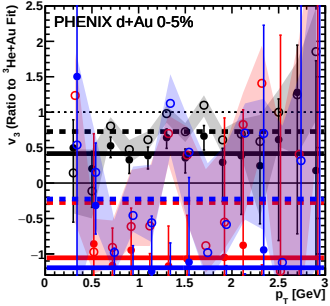

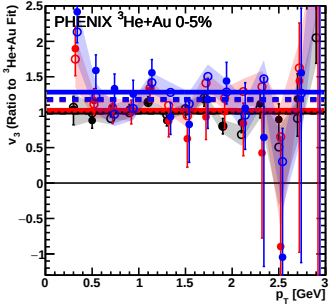

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