Initializing BSQ Across System Size With Open Source ICCING

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- ICCING (Initial Conserved Charges in Nuclear Geometry) samples a \( (g \rightarrow qq^\bar{q}) \) splitting function
- ICCING in C++, open source soon

**ICCING:** M. Martinez, M. D. Sievert, D. E. Wertepny, P. Carzon, and J. Noronha-Hostler, 1911.12454 (in preparation)

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Quark Multiplicities Across System Size

• Tenfold increase in quarks from OO to PbPb though same ratios

• Depends on $\alpha_s$ and gluon radius ($r$)

• Future
  • Retune $\alpha_s$ and $r$ to obtain quark content from particle yields
  • More OO results

Comparison of Energy and Conserved Charge Ellipticities

- ICCING energy $\varepsilon_2\{2\}$ matches Trento
- Baryon/Charge follow energy up to 60% Centrality
- Strange quarks produced in hotspots explains difference from Baryon/Charge

Fluctuations in Ellipticity

- Trends hold from original analysis
- Baryon/Charge follows Energy trend but departs in magnitude
- Significant difference between Baryon/Charge and Strange
- Good estimate for final flow harmonic
- Can be used to constrain parameters
Conclusions and Future

- ICCING Quark multiplicities reproduced
- PbPb energy $\epsilon_2\{2\}$ matches previous results
- OO and PbPb multiplicities differ by 10x but contain same quark ratios
- Distinct difference in Strange and Baryon/Charge
- Baryon/Charge $\epsilon_2\{2\}$ tracks energy in central and midcentral, $\epsilon_2\{4\}/\epsilon_2\{2\}$ differs in magnitude
- $v_2\{4\}/v_2\{2\}$ can restrain parameters

- More OO results
- Publish open-source ICCING
- Will run in BSQ hydro code, See Travis Dore (IS Thur. 16:15) and Debora Mroczek (NT Mon. 18:40)