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## Assessing the ultra-central flow puzzle in the Bayesian era

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A longstanding problem in the field is the inability for any simulation model to describe experimental flow data in extremely central collisions — in particular, models always predict either an elliptic flow that is too large or triangular flow that is too small (or both). We reassess the status of this puzzle in light of recent progress in Bayesian parameter estimation, in which a large model parameter space can be efficiently explored to determine what parameters are necessary for a good fit to experimental results, and how well state-of-the-art models are able to describe data. We explore predictions for flow in ultra-central collisions from multiple recent Bayesian models [1,2] that were tuned to various observables in different collision systems at typical centralities. We find that ultra-central data can now be described with better accuracy than in previous calculations. However, the tension with experimental observation still exists, and gets worse as one goes to more central collisions. Thus, the physics of ultra-central collisions is still not fully understood. We speculate on ways that the puzzle could be solved in the future.

[1] D. Everett *et al.* [JETSCAPE], Phys. Rev. C **103**, no.5, 054904 (2021).

[2] J. S. Moreland, J. E. Bernhard and S. A. Bass, Phys. Rev. C **101**, no.2, 024911 (2020).

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