



Contribution ID : 20

Type : **Contributed talk**

Model Predictive Scoring shows specific BAO points (not Supernovae) drive the dynamic dark energy tension

Wednesday, 28 October 2026 13:55 (10)

The recent analyses of DESI DR2 BAO, Planck CMB and various Supernovae datasets have shown preferences for dynamic dark energy (DDE) over cosmological constant at various levels of significance, under frequentist model comparison tests. However, the same analysis done with a pure Bayesian model comparison test can lead to the opposite conclusions. In contrast to these traditional model comparison metrics, we approach the problem along a third axis – which model better predicts unseen data. We use the Expected Log Predictive Density (ELPD) metric to score the predictiveness of cosmological constant and DDE models, using the leave-one-redshift-block-out cross-validation estimator. Aggregated, we find modest preferences for DDE, primarily driven by the BAO. Decomposing the ΔELPD score by redshift we find that a single BAO tracer, LRG2 ($z=0.706$), supplies the entire DDE preference. Interestingly, the biggest outlier point, LRG1, contributes little to the model predictive scoring because both models fail to predict the observation by equal amount. On the other hand, all SNIa datasets' ΔELPD scores are consistent with 0, indicating that at an out-of-distribution predictive level, the DDE tension is entirely driven by one BAO point, not SNIa.

Did you give a contributed talk at CASCA 2026?

No

If you are selected for a poster, would you be interested in giving a short flash talk on your work?

Yes

What is your career level?

Postdoctoral

Which keyword describes the area of focus of this talk?

Cosmology

Primary author(s): KARIM, Tanveer (University of Toronto); Prof. SPEAGLE, Joshua (University of Toronto); Prof. HLOŽEK, Renée (Dunlap Institute for Astronomy and Astrophysics, Université Laval)

Presenter(s): KARIM, Tanveer (University of Toronto)

Session Classification : Black holes & Instrumentation