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Beyond Fisher Forecasting for Cosmology

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As the quantity of cosmological data grows, it becomes increasingly important to be able to accurately forecast the constraints those data can place on cosmological models, so that instrumental and computational time and resources can be used most effectively. Fisher forecasting, which uses the Fisher Information Matrix (FIM) to approximate the (negative) log-likelihood of a given model, is a common approach. The advantage of Fisher forecasting is its speed and simplicity, but it carries the risk, in some cases, of producing over-simplified forecasts. In this talk, I will summarize some recent work that my colleagues and I have done to explore what kinds of forecasts would benefit from an approach that goes beyond the FIM by accounting for non-Gaussian correlations between cosmological model parameters. Additionally, I will describe a simple test that we have devised to determine when it is necessary to go beyond the FIM.

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