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**Primordial deuterium at the per cent level<sup>1</sup>**

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We are currently in an exciting era of precision cosmology. With the release of the cosmic microwave background data recorded by the Planck satellite, we are now in a position to accurately test the standard model of cosmology and particle physics. In this talk, I will present two new, precise measures of the primordial abundance of deuterium – the most accurate measurements to date – derived from redshift  $\sim 3$  near-pristine damped Lyman-alpha systems. In light of these new measurements, we have performed a careful reanalysis of the best literature systems where the primordial deuterium abundance can be estimated. These precise measures, when analyzed in conjunction with the Planck data, now place strong limits on the effective number of neutrino species in the early Universe, and offers new insight into physics beyond the standard model. I will also discuss the future prospects of this technique and our ongoing survey to obtain new precision measures of the primordial deuterium abundance.

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