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# Baryonic Acoustic Oscillation Correlations at z=2.4 with SDSS-III Lyman-α Forests

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## Summary

We measure the large-scale correlation using the Lyman-$\alpha$ forest absorption field and the quasar positions. We use over 170,000 forests from Data Release 12 (DR12) of the SDSS-III BOSS survey and over 240,000 quasars from DR12 and from DR7 of the SDSS-II survey. We compute two 3D correlations: the Lyman-$\alpha$ auto-correlation and the quasar - Lyman-$\alpha$ cross-correlation. This study allows us to measure the Baryonic Acoustic Oscillation (BAO) scale, along and across the line of sight, at a mean redshift of z = 2.40. These scales are linked to the Hubble parameter and the angular diameter distance, respectively. We use simulations to search for a possible bias in the measurement of the BAO scale.


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