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Understanding high redshift structures from initial fluctuations until today

This talk is dedicated to the modeling and constraint simulations of the distant Universe.

Introducing high redshift observations ($2.5 > z > 2$) galaxy and Lyman-α forest absorption observations, I will present the reconstruction of the dark matter density field and infer the initial fluctuations compatible with these structures.

Starting from here, I will show the results of our constraint cosmological simulations of these structures until today and the evolution of the most massive (photo-)clusters in this volume. The outcome of this work is especially interesting to understand galaxy formations and its interplay with the intergalactic medium.

Finally I will discuss the link of galaxy redshift and Lyman-α observables and provide a joint interpretation for these reconstructions.

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Session Classification: Parallel Sessions: Large Scale Structure (C.A.R.L., H09)

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