

Bayesian field-level inference with DESI galaxies and ZTF SN Ia

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To unlock the full potential of upcoming datasets and probe the dark sector, we must move beyond information-compression techniques towards field-level analysis. The Aquila Consortium has been at the forefront of developing Bayesian field-level inference (FLI) with the BORG algorithm.

In this talk, I will briefly remind the basics of FLI with BORG, then I will present its application to ZTF SN Ia mock data which constitutes the work of my PhD student, Mahmoud Osman, with preliminary results on the density and velocity fields reconstruction, together with cosmological parameter inference. Eventually, I will present my work on developing and testing BORG's data product, Manticore, to the DESI BGS with preliminary results on the reconstruction at fixed cosmology.

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