

Cosmic Cartography 2022: Exploring the Cosmic Web and Large-Scale Structure



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Critical event theory: towards a multiscale and anisotropic description of the cosmic web

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There are increasing evidences that the cosmic web biases galaxy formation. In particular, the cosmic web contributes to the modulation of galaxy properties with their spatial location. However, modeling these effects is made complex by the multiscale and anisotropic nature of the cosmic web. In this talk, I will present recent progress made towards providing a comprehensive and physically-motivated description of the evolution of the cosmic web using the so-called “critical event” theory. I will show how the theory encodes the hierarchical assembly of the bricks of the cosmic web – voids, walls, filaments and nodes. I will then discuss how this can then be employed as a middle ground to 1. predict the cosmic web evolution and 2. be used as input to galaxy formation models. I will also discuss possible applications of the theory as an efficient tool to describe the multiscale nature of cosmic web, complementing more classical one- and two-points statistics.

Presenter: CADIOU, Corentin (University College London)

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