Evidences for primordial magnetism in the cosmic web?

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Abstract

I will discuss how the combination of the latest radio observations of the cosmic web (from synchrotron emission to Faraday Rotation), combined with other probes of cosmic magnetism (like blazars) and priors from CMB analysis, are pointing towards the presence of volume filling and weak magnetic fields on the largest scales in the Universe, compatible with a primordial origin of extragalactic magnetic fields. I will discuss how this interpretation is also linked with a proper modelling of the time integrated effect of astrophysical sources of magnetisation of large scale structures, and how new numerical simulations are been developing towards this goal.

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