

# Evolution of Cosmological Magnetic Fields from Early to Late Times

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The physics of primordial magnetic fields can be broken down into three main motifs that are addressed: the generation of a magnetic field in the early universe, the evolution of this magnetic fields subject to magnetohydrodynamic (MHD) effects through the various cosmological epochs, and the detection and/or probing of this magnetic field with a comprehensive array of astrophysical and cosmological observations. After the seed magnetic field is formed at the magnetogenesis epoch, its subsequent evolution is governed by a coupling to plasma turbulence, decay due to adiabatic expansion and Alfvénic unfolding, and resistive dissipation. After the recombination epoch the seed field stays frozen-in and starts to interact with cosmic again during first structure formation and reionization. In this talk I will review the evolution of the magnetic fields from the moment of its generation till today.

**Primary author:** KAHNIASHVILI, Tina

**Presenter:** KAHNIASHVILI, Tina