



Contribution ID: 201

Type: **not specified**

## Primordial magnetic fields from cosmic defects

*Friday 11 September 2015 14:20 (20 minutes)*

A symmetry-breaking phase transition in the early universe could have led to the formation of cosmic defects. Because these defects dynamically excite not only scalar and tensor type cosmological perturbations but also vector type ones, they may serve as a source of primordial magnetic fields.

In this study, we calculate the time evolution and the spectrum of magnetic fields from two types of cosmic defects, called global texture and cosmic string. To see cosmological scale magnetic fields, here we use the non-linear sigma model for the texture model and infinite string for the cosmic string model.

Based on the standard cosmological perturbation theory, we show that relative velocity between photon and baryon fluids induced by the cosmic defects could lead to magnetic field generation over a wide range scale inevitably.

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**Session Classification:** Inflation and phase transitions