Contribution ID: **168** Type: **not specified**

Astrophysical and Cosmological Probes of Cosmic String Networks

Wednesday, 9 September 2015 10:20 (20 minutes)

The discovery of a cosmic string network would provide compelling evidence for a symmetry-breaking phase transition in the early universe, and thereby further our understanding of particle physics at high energies with implications for baryogenesis, magnetogenesis, inflation, and string theory. Whereas high tension string networks, such as those associated with a GUT-scale phase transition, have characteristic gravitational signatures like lensing, these gravitational observables become ineffectual at probing a lighter string network, which could be associated with the EW- or SUSY-breaking phase transition. In this regime, we can still seek out the string network via the particle radiation that it emits. In this talk, I will review the perturbative particle emission mechanism and present our particle radiation "catalog" that summarizes the spectra for various different radiation channels. Then I will discuss the implications for detectability through different astrophysical (cosmic ray) and cosmological (BBN/CMB) probes.

Presenter: LONG, Andrew (KICP, United States)

Session Classification: Inflation and phase transitions