Contribution ID: **204** Type: **Oral**

Blazar Halo Morphology as a Probe of Helical Intergalactic Magnetic Fields

Thursday 10 August 2017 14:00 (15 minutes)

In models of early universe cosmology, primordial magnetic fields with helicity can be created during cosmological inflation, and they may play a role in the generation of the matter / antimatter asymmetry of the universe. Such a primordial magnetic field will persist in the universe today as an intergalactic magnetic field, and the discovery of this cosmological relic will open a new window onto the early universe. In this talk I will discuss a new probe of helical intergalactic magnetic fields through TeV blazar halo morphology. The emission of TeV gamma rays from blazars at cosmological distances will induce an electromagnetic cascade when the TeV gamma rays are incident upon starlight and produce electron-positron pairs. These charged leptons are deflected by the presence of an intergalactic magnetic field, which forms a halo of GeV cascade gamma rays around the blazar. In this talk I will discuss how the halo can acquire a parity-violating shape if the intergalactic magnetic field is helical.

Author: LONG, Andrew (University of Chicago)

Co-author: Prof. VACHASPATI, Tanmay (Arizona State University)

Presenter: LONG, Andrew (University of Chicago)

Session Classification: Cosmology

Track Classification: Cosmology (incl. neutrino mass/number density)