



Contribution ID: 1

Type: **not specified**

Relieving the Hubble tension with primordial magnetic fields

Thursday, July 9, 2020 3:00 PM (1 hour)

The standard cosmological model determined from the accurate cosmic microwave background measurements made by the Planck satellite implies a value of the Hubble constant H_0 that is 4.2 standard deviations lower than the one determined from Type Ia supernovae. The Planck best fit model also predicts lower values of the matter density fraction Ω_m and clustering amplitude S_8 compared to those obtained from the Dark Energy Survey Year 1 data. We show that accounting for the additional inhomogeneities in the baryon density induced by primordial magnetic fields present in the plasma prior to recombination can help to solve both the H_0 and the S_8 - Ω_m tensions. The required field strength is just what is needed to explain the existence of galactic, cluster, and extragalactic magnetic fields without relying on dynamo amplification. Our results show clear evidence for this effect and motivate further detailed studies of primordial magnetic fields, setting several well-defined targets for future observations.

Presenter: POGOSIAN, Levon (Simon Fraser U.)