Simulation of Cosmic Microwave Background Polarization Fields for AMiBA Experiment

Changbom Park[1], Chan-Gyung Park[1]

[1]*School of Earth and Environmental Sciences (Astronomy Program), Seoul National University*

We have made a topological study of cosmic microwave background (CMB) polarization maps by simulating the AMiBA experiment results. A Lambda CDM CMB sky is adopted to make mock interferometric observations designed for the AMiBA experiment. CMB polarization fields are reconstructed from the AMiBA mock visibility data using the maximum entropy method.

We also considered effects of Galactic foregrounds on the CMB polarization fields. The genus statistic is calculated from the simulated Q and U polarization maps, where Q and U are Stokes parameters. Our study shows that the Galactic foreground emission, even at low Galactic latitude, is expected to have very little effect on the CMB polarization field. Increasing survey area and integration time is essential to detect non-Gaussian signals of cosmological origin through genus measurement.