[GC-09] Propagation of UHE Photons through a Magnetized Large Structure

Santabrata Das[1], Hyesung Kang[2], Dongsu Ryu, Jungyeon Cho[3]
ARCSEC, Pusan Nat'l Univ., Chungnam Nat'l Univ.

We investigate alignments between the spin axes of cosmic voids and the principal axes of nearby superclusters using the Millennium Run simulation of a LCDM cosmology. The concept of void spin was first introduced by Lee and Park in 2006 to quantify the tidal effect on voids from the surrounding matter distribution. Our numerical analysis reveals that the void spin axes are strongly aligned with the supercluster minor axes, but anti-aligned with the major axes, and have no correlations with the intermediate axes. We provide physical explanations to this numerical results on the basis of tidally induced correlations. It is expected that our work will provide a new insight into the characterization of the cosmic web on the largest scale.

[GC-10] SHB Progenitor Life Time & Three Classes of GRB

정수민[1], 이창환[2]
[1]이화여자대학교 물리학과, [2]부산 대학교 물리학과

Until 2005, afterglows of the short hard gamma ray burst (SHB) had not been detected because of observational difficulties in obtaining accurate localization. After detecting the afterglow of SHB, it allowed us to estimate the SHB progenitors. The most promising candidates of SHB progenitors are NS-NS mergers and NS-BH mergers. In this work, we calculated the local rate of SHBs to constrain the lifetime of SHB progenitors by using various star formation history models and presumed progenitor lifetimes. Our results confirm that the SHB progenitors are consistent with old population, about 6Gyr ~ 10Gyr lifetime. We applied this method to two possible subclasses in long soft gamma ray bursts. We found that three classes of gamma ray burst are more probable.