

Abstract Submitted
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Primordial magnetic field, CMB, and BBN DAI YAMAZAKI, Department of Astronomy, Graduate School of Science, University of Tokyo, KIYOTOMO ICHIKI, TAKA KAJINO, National Astronomical Observatory Japan, GRANT MATHEWS, Center for Astrophysics, Department of Physics, University of Notre Dame — The cosmic microwave background (CMB) anisotropies give important information to constrain cosmological parameters including the universal baryon density. Recent CMB observations have been extended to higher multipoles $l > 1000$ to exhibit an excess power than the standard model prediction in cosmological theory which best fits the Wilkinson Microwave Anisotropy Probe data at lower multipoles $l < 900$. This would make another uncertainty in resolving the discrepancy of baryon density determined from CMB and Big-Bang nucleosynthesis. Thus we consider the effect of the cosmological primordial magnetic field that affects strongly the CMB power spectrum. We calculate the CMB temperature anisotropies generated by the power-law magnetic field at the last scattering surface in order to explain the excess power at higher multipoles, and also try to constraint more accurately the baryon density and upper limit to primordial magnetic field.

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