

U01a

局所銀河群の X 線ハローとマイクロ波背景輻射温度揺らぎの 4 重極

須藤 靖^{1,2}、牧島一夫^{1,2}、石崎欣尚¹、小賀坂康志³ (¹ 東大理物理、² 東大理 RESCEU、³ 宇宙研)

Since recent X-ray observations have revealed that most clusters of galaxies are surrounded by an X-ray emitting gaseous halo, it is reasonable to expect that the Local Group of galaxies has its own X-ray halo. We show that such a halo, with temperature $\sim 1\text{keV}$ and column density $\sim O(10^{21})\text{cm}^{-2}$, is a possible source for the excess low-energy component in the X-ray background. The halo should also generate temperature anisotropies in the microwave background via the Sunyaev-Zel'dovich effect. Assuming an isothermal spherical halo with the above temperature and density, the amplitude of the induced quadrupole turns out to be comparable to the COBE data without violating the upper limit on the y -parameter. The induced dipole is negligible compared to the peculiar velocity of the Local Group, and multipoles higher than quadrupole are generally much smaller than the observed ones. However non-sphericity and/or clumpiness of the halo will produce a stronger effect. Therefore the gaseous halo of the Local Group, if it exists, will affect the estimate of the primordial spectral index n and the amplitude of the density fluctuations deduced from the COBE data.