Peculiarly Narrow SED of GRB 090926B with MAXI and Fermi/GBM

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The monitor of all-sky X-ray image (MAXI) Gas Slit Camera (GSC) on the International Space Station (ISS) detected a gamma-ray burst (GRB) on 2009, September 26, GRB\,090926B. This GRB had extremely hard spectra in the X-ray energy range. Joint spectral fitting with the Gamma-ray Burst Monitor on the Fermi Gamma-ray Space Telescope shows that this burst has peculiarly narrow spectral energy distribution and is represented by Comptonized blackbody model. This spectrum can be interpreted as photospheric emission from the low baryon-load GRB fireball. Calculating the parameter of fireball, we found the size of the base of the flow $r_0 = (4.3 \pm 0.9) \times 10^{9} \, Y^{\prime \, -3/2}$ cm and Lorentz factor of the plasma $\Gamma = (110 \pm 10) \, Y^{\prime \, 1/4}$, where $Y^{\prime}$ is a ratio between the total fireball energy and the energy in the blackbody component of the gamma-ray emission. This r_0 is factor of a few larger, and the Lorentz factor of 110 is smaller by also factor of a few than other bursts that have blackbody components in the spectra.

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