[S8-1] FIMS Observation of Cygnus Loop

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We present far-ultraviolet spectral maps of the entire Cygnus Loop region observed with the FIMS (Far ultraviolet IMaging Spectrograph; also known as SPEAR) onboard the first Korean scientific satellite, STSAT-1. The Cygnus Loop is the prototypical "middle-ages" supernova remnant. Because of its relative low reddening, it has been extensively studied in the UV with IUE, Voyager, the HUT, the HST, and the FUSE. The spatial distribution of the emission is that of a limb-brightened shell, and similar to soft X-ray maps. The global structure of shock structures are investigated with the unprecedented wide field of view and the relatively good spectral resolution of the FIMS.
Some spectra observed from hot interstellar media, such as other supernova remnants and soft X-ray shadows are also presented.

[S8-2] Interaction between the Supernova Remnant HB 21 and Molecular Clouds

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We present the results of 12CO J=1-0 observations covering the entire area (120′×90′) of the SNR HB 21 made with the SRAO 6-m telescope. Our complete map reveals a new cloud which appears to be swept up by the SNR shock in the northwestern area. The cloud shows broad CO line wings (ΔV>10km/s), bow-shaped morphology, and enhanced radio emission along the boundary. Toward the central region, an X-ray bright area of the remnant, we have carried out sensitive CO observations and detected small broad line clouds which are likely to be embedded and evaporating in a hot interior of the SNR. They are, however, not correlated with the X-ray distribution. We also present the results of high-resolution 12CO J=1-0 line observations for two shocked, 1′-sized clumps made with the NRO 45-m telescope. It reveals physical and dynamical structure of the shocked clumps. It used to be assumed that the SNR is associated with the Cyg OB 7 molecular cloud (0.8 kpc), but there is no direct evidence for the physical association. We instead suggest 2.0 kpc as the distance to HB 21 by comparing the X-ray absorbing column density to the actual foreground hydrogen column density.