calculated collimation-corrected luminosities and opening angles using the observed light curves taken from a database of Swift/BAT, XRT. We expect to increase its significance level by expanding a sample size compared with those previously analyzed.

성간물질/별생성/우리은하

[포 IM-01] Study on the global distribution of far-ultraviolet emission in our Galaxy

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FIMS/SPEAR is a dual-channel far-ultraviolet imaging spectrograph on board the Korean microsatellite STSAT-1, which was launched on 2003 September 27. The primary mission goal of FIMS was to conduct a survey of diffuse far UV emissions in our Galaxy. For this purpose, FIMS completed a survey of about 84% of the sky during its operation of a year and a half. The present study aims to analyze this survey data made in the far UV wavelengths to understand the global evolution of our Galaxy. The far UV wavelength band is known to contain important cooling lines of hot gas: hence, the study will show how the hot gas in our Galaxy, produced by stellar winds and supernova explosion, evolves globally to cool down and become mixed with ambient cooler medium. One of the main findings from previous analyses of the FIMS data is that molecular hydrogen exists ubiquitously in our Galaxy. This discovery leads to another important scientific question: how is molecular hydrogen distributed in our Galaxy and how does it affect globally the evolution of our Galaxy as a cold component? Hence, the present study will cover both the hot and cold components of the ISM, which will also provide the opportunity to investigate the interactions between the two.

[포 IM-02] SgrA* 22GHz KaVA(+TAK) observation and its Amplitude Calibration

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SgrA* located in the center of the Milky Way is of great interest to understand the physics of supermassive black hole(SMBH) and the interaction of the G2 cloud around SgrA* with the accretion flow which was expected since 2013. In order to seize this rare opportunity, KVN and VERA Array (so called, KaVA) has started an intensive monitoring program of SgrA* at 22/43 GHz where scatter broadening is reduced compared to lower frequency VLBI observations. We present the results of KaVA SgrA* observation together with Takahagi (32m) and Yamaguchi (32m) telescopes at 22 GHz on March 24, 2013. We have tested both a standard amplitude calibration methods using the Tsys and antenna gain information and a template amplitude calibration method which uses a peak of H2O maser line of nearby maser source (SgrB2), and found that the latter method is useful when an accuracy of Tsys measurement or antenna gain of a telescope is poor. In our comparison, the difference between the two methods is around 20% (~5% for the KVN and ~15% for the VERA when the elevation is above 20°). We also imaged SgrA* with a total flux of ~0.7 Jy at 22GHz, and fitted an elliptical Gaussian model which has a size of ~2.5mas for major axis and ~1.7mas for minor axis, respectively.

[포 IM-03] HCO+ Observations toward Compact Radio Continuum Sources Using the KVN 21-m Telescopes to Trace Dark Molecular Gas

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It has been known that there is “dark gas” invisible either in 21-cm HI or 2.6-mm CO emission which are general tracers of atomic and molecular gas, respectively. Many researchers consider that the dark gas is “Dark Molecular Gas (DMG)” composed of CO-free H_2 in the intermediate zone between atomic and full-fledged molecular gas and that HCO+ and OH molecules are good tracers of the DMG since they can form in much lower H_2 column densities where CO does not. We have carried out HCO+ J=1-0 absorption observations toward nine bright extragalactic radio