[구SS-01] The optical spectra of zodiacal light

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Numerous dust particles are scattered in the interplanetary space of the solar system (Interplanetary Dust Particles; IDPs). The origin of the IDPs is one of the major questions in the solar system astronomy because IDPs are being removed from the solar system within a few million years by photon drag. Comets and asteroids were pointed out as the possible sources of IDPs. Although several dust supplying mechanisms from comets and asteroids have been revealed, amount of contribution from each sources are still not clear.

Zodiacal light is sunlight scattered by IDPs. Spectra of zodiacal light can supply important observational clue to reveal the origin of the IDPs, because comets and each type of asteroids have different kind of spectra. However, reflectance spectrum of zodiacal light was not measured at the wavelength of weak atmospheric contamination.

We measured the reflectance spectra of zodiacal light from 5000Å to 7000Å. We used open data obtained by the Subaru/FOCAS instruments archived in the SMOKA database. From the longslit spectrum data, we measured spectrum of sky background and estimated flux from the sources other than the zodiacal light. We compared it with the spectra of each type of minor bodies in the solar system, and meteorites originated from these bodies.

[구SS-02] Mass constraint and temperature estimation of eruptive plasma in X-ray

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We investigate several eruptive hot plasma observations by Hinode/XRT. Their corresponding EUV and/or white light CME features are visible in some events. Using those observations, we determine the mass constraints of eruptive plasma by assuming simplified geometrical structures of the plasma. In some events, their associated prominence eruptions and eruptive plasma were observed in EUV observations as absorption or emission features. The absorption feature provides the lower limit to the cold mass while the emission feature provides the upper limit to the mass of observed eruptive plasma in X-ray and EUV passbands. We compare the mass constraints for each temperature responses and find that the mass in EUV and XRT are smaller in their upper or lower limit than total mass in coronagraph. About half eruptive events in XRT have no corresponding CME, which may be due to failed eruptions or low plasma density. In addition, some events were observed by a few passbands in X-ray, which allows the determination of the eruptive plasma temperature using a filter ratio method. We present the isothermal plasma temperatures by the filter ratio method. These are possibly an average temperature for higher temperature plasma because the XRT is more sensitive in higher temperature.