that can account for the observed characteristics of the lunar coma and tail simultaneously. Recently, the initial abundances of atomic species near surface are found to be different depending on certain local areas. We will present the influence of different initial conditions of localized sources on the characteristics of the lunar exosphere, and also present time-dependent simulations showing the distributions of atomic species around the lunar coma and the final stage of the lunar tail. Based on our updated 3-D lunar model, we will present resulted physical parameters of the lunar sodium coma and tail.

[포 SS-02] The inference of minimum temperature of the solar atmosphere from the FISS data

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In the solar atmosphere, below the region of temperature minimum, temperature decreases with height and above it, temperature increases with height. Therefore the inference of temperature minimum is a basis of the study about the solar atmosphere and heating problem. The temperature of the temperature minimum region can be inferred from acoustic cutoff frequency. According to a recent study the acoustic cutoff frequency is related to the peak frequency of the power spectrum the chromospheric three-minute velocity oscillations. Using this relationship, we infer the temperature of temperature minimum. The three minute velocity oscillation and its power spectrum are obtained for a pore observed with the Fast Imaging Solar Spectrograph (FISS) Hα band. We present the inferred temperature and compare it with the temperature of Maltby model. We also investigate the effect of the inclination of magnetic field on the temperature minimum.

[포 SS-03] The Limit of Magnetic Helicity Estimation by a Footpoint Tracking Method during a Flux Emergence

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Theoretically, the magnetic helicity transport flux through the solar surface into the upper atmosphere can be estimated indefinitely precisely by magnetic field footpoint tracking if the observational resolution is infinitely fine, even with magnetic flux emergence or submergence. In reality, the temporal and spatial resolutions of observations are limited. When magnetic flux emerging or submerging, the footpoint velocity goes to infinity and the normal magnetic field vanishes at the polarity inversion line. A finite observational resolution thus generates a blackout area in helicity flux estimation near the polarity inversion line. It is questioned how much magnetic helicity is underestimated with a footpoint tracking method due to the absence of information in the blackout area.

We adopt the analytical models of Gold-Hoyle and Lundquist force-free flux ropes and let them emerging from below the solar surface. The observation and the helicity integration can start at different emerging stages of the flux rope, i.e., the photospheric plane initially cuts the flux rope at different levels. We calculate the magnetic helicity of the flux rope below the photospheric level, which is eventually to emerge, except the helicity hidden in the region to be swept by the blackout area with different widths.

Our calculation suggests that the error in the integrated helicity flux estimate is about half of the real value or even larger when small scale magnetic structures emerge into the solar atmosphere.

[포 SS-04] Velocity oscillations in the Chromosphere above a Solar Quiet Region

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We investigate velocity oscillations in a solar quiet region by using the spectral data of the Hα and Ca II 8542Å lines. The data were acquired by the Fast Imaging Solar Spectrograph installed at the 1.6 m Goode Solar Telescope of Big Bear Solar Observatory. According to Chae & Litvinenko (2018)'s theoretical work, there is a correlation between dominant period of the oscillations and the temperature of the temperature minimum region in a non-isothermal atmosphere. In our study, we measure the temporal variations of the intensity and the line of sight Doppler velocity, and find out the relations between the intensity and

dominant period of the oscillations. In addition, we investigate oscillations in a few distinct regions and discuss regional characteristics of the oscillations.

항성/항성계/외계행성

[포 SA-01] Intensive Monitoring Survey of Nearby Galaxies: 2017/2018 Status

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SNe light curves have been used to understand the expansion history of the universe, and a lot of efforts have gone into understanding the overall shape of the radioactively powered light curve. However, we still have little direct observational evidence for the theorized SN progenitor systems. Recent studies suggest that the light curve of a supernova shortly after its explosion (< 1 day) contains valuable information about its progenitor system and can be used to set a limit on the progenitor size, R*. In order to catch the early light curve of SNe explosion and understand SNe progenitors, we are performing a ~8hr interval monitoring survey of nearby galaxies (d < 50 Mpc) with 1-m class telescopes around the world. Through this survey, we expect to catch the very early precursor emission as faint as R=21 mag (~0.1 Rsun for the progenitor). In this poster, we outline this project, and provide updates on IMSNG projects during 2017/2018 seasons.

[포 SA-02] Metal-Poor F-G-K type Local Subdwarfs From SDSS + GAIA GR2: Spectrophotometric & Kinematic Properties

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We introduce a new project of constructing a large spectro-photometric samples of metal-poor (i.e. [Fe/H] < -1.0) subdwarfs in the Galactic halo. The sample is collected from a compilation of the stellar objects that are cross-identified both in the Sloan Digital Sky Survey (SDSS) and recently published data from GAIA mission. The color range of the selected stars covers 0.0 < (g-r) < 2.0; thus the spectral types of our sample span from early F- through late K-type stars on the metal-poor main sequence (i.e. the local subdwarf sequence). We scrutinized the physical, chemical, and kinematical properties of our samples using their SDSS medium-resolution (R ~ 2000) spectra, combined with accurately measured proper motions from GAIA satellite. Our study will provide useful information on the global trend in the various properties (e.g. abundance pattern as a function of the galactocentric distance; rotational velocity vs [Fe/H] … etc) of the metal-poor subdwarf populations in the Galactic halo, which is ultimately important to better understand metal-poor stellar evolutionary models and chemical evolution of the Milky Way halo in the early phase of its formation. Further our comprehensive catalog of the Galactic field halo subdwarfs collected in this study will serve a solid groundwork for future follow-up high resolution spectroscopic observations on many interesting individual targets.

[포 SA-03] Peculiar Features in the Emission Lines of Symbiotic Stars AG Draconis and UV Aurigae

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공생별 AG Dra와 UV Aur에 대해 지난 10여년간 보현산천문대 1.8m망원경과 고분산 에셀 분광기 BOES(BOao Echelle Spectrograph)로 분광관측을 수행해 왔다. 최근 2017년 11월 - 2018년 6월 관측에서, AG Dra의 Fe II 방출선과 UV Aur Hα 방출선이 예년과 다른 변화 모습을 보이고 있음을 찾아내었다. 이에 대한 변화 원인을 공전주기, 밝기 변화 또는 다른 이유와 연관지어 설명하고자 한다.

[포 SA-04] Proper motion and physical parameters of the two open clusters NGC 1907 and NGC 1912