포스터 발 표 초 록

교육홍보

[포 AE-01] Sunggok Ohseck starlight Village and public activities of Kyungnam amateur astronomers (성곡오색별빛마을과 경남지역 아마추어천문 활동)

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성곡오색별빛마을은 경상남도 창녕군의 대산, 월곡, 안심, 연당, 연화 다섯 개의 마을 주민들이 만든 천문대시설이다. 창녕군 농어촌공사의 권역단위 종합정비사업으로 2013년 시작하여 2017년까지 건립되었다. 현재 성곡오색별빛마을 영농조합법인에서 시설 전반을 운영하고 있는데, 한국아마추어천문학회 경남지부에서 천문 프로그램을 운영하고 있다. 본 발표에서는 성곡오색별빛마을에 대한 소개와 더불어 최근 한국아마추어천문학회 경남지부의 천문지도사 양성프로그램과 정기관측회 및 교육기부를 통한 천체관측 문화 확산 및 경남메시에 마라톤 등에 대한 소개를 하고자 한다.

[포 AE-02] Activity of Young Astronomers Meeting in 2018-19 Season

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지난 2018년 5월, 젊은 천문학자 모임 (Young Astronomers Meeting, YAM)은 봄 정기총회를 가졌고, 2018-19 시즌 임원진으로 회장 세종대학교 장석준, 부회장 서울대학교 김소피아 회원이 선출되었다. 각 운영위원으로는 과학기술연합대학원대학교 김성재, 경희대학교 박소명, 서울대학교 신수현, 충남대학교 정미지 회원이 임명되었다. 이번 시즌에는 기존에 We Love Galaxies와 공동으로 개최해오던 YAM 워크샵을 통합함과 동시에 K-GMT 워크샵에 뒤이어 1박 2일 동안 진행하게 되었다. 특별히 이번 워크샵에서는 얌의 의미와 역할에 대해서 심도 깊은 의견을 나누고자 하였으며, 모인 의견과 피드백을 바탕으로 2019년도에 진행할 활동들을 계획해보았다. 또한 본 모임의 온라인 소식지인 <하늘사랑> 제 8호를 3월에 발간하였다. 이번 포스터에서는 2018-19 시즌의 활동 내용을 보고하고 이후의 계획에 대해 논의하고자 한다.

성간물질/별생성/우리은하

[포 IM-01] NIR spectroscopy of three class I young stellar objects using IGRINS

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We present near-infrared spectroscopic results for three nearby class I sources, IRAS 03445+3242, IRAS 04239+2436 and ESO Hα 279a. We detected many molecular and atomic line emissions, e.g., H_2, [Fe II], Hydrogen Bracket series recombination, Ca I, Na I & CO overtone band, from these sources using the high-resolution Immersion GRating INfrared Spectrometer (IGRINS; R~45,000). Previous studies showed that all the three sources posses actively accreting Keplerian disks. We performed spectral analysis to understand the origin of Hydrogen Bracket series recombination lines. We also estimated the accretion properties and mass loss rates of circumstellar disks for all the three sources.

[포 IM-02] Physical Properties of Molecular Clouds in NGC 6822 Hubble V

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NGC 6822 is a dwarf irregular galaxy whose metal abundance is lower than of the Large Magellanic Cloud. Hubble V is the brightest HII complex where molecular clouds surround the

core cluster of OB stars. Because of its proximity (d = 500 kpc), we can resolve the star-forming regions on parsec scales (1 arcsec = 2.4 pc). Using the high-resolution (R = 45,000) near-infrared spectrograph, IGRINS, we observed molecular hydrogen emission lines from photo-dissociation regions (PDRs) and Brγ emission line from ionized regions. In this presentation, we compare our data PDR models in order to derive the density distribution of the molecular clouds on parsec scales and to estimate the total mass of the clouds.

[포 IM-03] Radiative Transfer Modeling of EC 53: An Episodically Accreting Class I Young Stellar Object

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We present 2-dimensional continuum radiative transfer modeling for EC53. EC 53 is a Class I YSO, which was brightened at 850 μm by a factor of 1.5. This luminosity variation was revealed by the JCMT Transient Survey. The increase in brightness is likely related to the enhanced accretion. We aim to investigate how much increase of protostellar luminosity causes the observed brightness increase at 850 μm. Thus we modeled the SED of EC 53 both in the quiescence and (small scale) outburst phases, with and without the external heating from the interstellar radiation field (ISRF). We found that the internal protostellar luminosity should increase more to fit the observed flux enhancement if the ISRF is considered in the model.

[포 IM-04] Results of KVN and ALMA observations toward WX Psc

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We present the results of KVN and ALMA observations toward WX Psc (IRC+10011) which is a long-period variable OH/IR star. The SiO masers of v=1 and v=2, J=5-4, and the SiO thermal emission of v=0, J=5-4 were observed together with H2O v2=1 (232.6 GHz) and continuum emission at ALMA Band 6 in October 2017 (Cycle 5). This observation aims to investigate the physical association between the inner and outer parts of the circumstellar envelope (CSE) swept by the stellar winds, which is very crucial to understand the asymmetric outward motions developed during the evolutionary phases from the asymptotic giant branch (AGB) stars to the planetary nebulae (PNe). The strong SiO maser features and thermal emissions are detected together with the continuum emission in ALMA observation, which imply the elongated morphology of the CSE of WX Psc. While the spatial resolution of about 20 mas in ALMA observation cannot clearly resolve the detailed characteristics of the inner part of the CSE, the Korean VLBI Network (KVN) observations show the spatial distributions of the v=1 J=1-0, J=2-1, J=3-2 SiO masers emitted from the inner regions of CSE, which are the complementary to the ALMA results. Therefore, we expect these results reveal how the bipolar features of the 22 GHz H2O maser are connected to the innermost region of CSE through the dust condensation region, which is closely related to the enormous mass ejection of the evolved stars.

[포 IM-05] A disk around a massive young stellar object (MYSO) revealed by the high resolution NIR spectroscopy

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Massive stars play an important role in terms of their feedback, but their formation process is poorly understood. Direct observational evidence for the formation of massive stars through accretion disks is rare. Hence the detection of disks in massive young stellar objects (MYSOs), if any, could be important to constrain the formation process of massive stars. The inner gaseous disk can be observed by the high-resolution near-infrared spectroscopy. We observed a MYSO, Min 2-62, using IGRINS and detected a double peak feature, which could be an evidence of a rotating disk, in the Bracket and Pfund series lines. We report the preliminary observational results of Min 2-62 with IGRINS.

[포 IM-06] 2 – 5 μm Spectroscopy of Red