Gaseous inner disks are the main controller of the final structure of planetary systems as well as the building place of planets, especially of terrestrial planets. However, the inner disk of <5AU is still difficult to be spatially resolved even at the closest star forming regions. Resolving velocity structure in the disk with high resolution infrared spectroscopic study is the best approach to study the inner disk at this moment. Here, we present the IGRINS (Immersion GRating INfrared Spectrometer) result of the Class I young stellar object, ESO Ha 279a, in the Serpens molecular cloud region. IGRINS has a resolving power of R=40,000, corresponding to the velocity resolution of 7 km/s at K-band, which is perfect to study the hot inner disk structure. We report that NaI and CO overtone emission lines are indeed good tracers of the rotating inner warm disk tracing from ~0.04 to ~7AU of this source. We also report the disk properties using other emission lines.

[구 IM-06] POLYCYCLIC AROMATIC HYDROCARBON (PAH) MOLECULES IN THE DISKS AROUND LOW MASS STARS

Kyoung Hee Kim (김경희), and IRS_Disks team
Korea Astronomy And Space Science Institute

We present 5-14 μm Infrared Spectrograph spectra of 14 T Tauri stars which show Polycyclic Aromatic Hydrocarbon (PAH) features and reside in 0.7 pc from θ^1 Ori C. The spectral types of nine out of 11 stars have spectral type information, with types ranging from K7-M5. These stars do not supply strong enough UV photons to excite PAH emission in their disks. Therefore, we consider the detection of PAH emission in disks around low mass stars illuminated by an external source of UV photons, namely, from Trapezium OB association, including θ^1 Ori C. The morphological features of PAH emission from most disks around K-M type host stars are unique, not belonging to any known classes of PAH features. We found that the PAH emission strengths decrease as the projected distance of the objects from θ^1 Ori C increase. We suggest future far-IR and submm/mm observations for better understanding of the characteristics and distribution of PAHs in these disks.

AGN

[구 AGN-01] First Detection of 350 Micron Polarization from 3C 279

Sang-Sung Lee[1,2], Sincheol Kang[1,2], Do-Young Byun[1], Nicholas Chapman[3], Giles Novak[3], Sascha Trippe[4], Juan-Carlos Algaba[1], and Motoki Kino[1]
[1]Korea Astronomy and Space Science Institute, [2]Korea University of Science and Technology, [3]Northwestern University, [4]Seoul National University,

We report the first detection of linearly polarized emission at an observing wavelength of 350 mum from the radio-loud active galactic nucleus 3C 279. We conducted polarization observations for 3C 279 using the SHARP polarimeter in the Caltech Submillimeter Observatory on 2014 March 13 and 14. For the first time, we detected the linear polarization with the degree of polarization of 13.3% ± 3.4% (3.9sigma) and the electric vector position angle (EVPA) of 34.°7 ± 5.°6. We also observed 3C 279 simultaneously at 13, 7, and 3.5 mm in dual polarization with the Korean very long baseline interferometry (VLBI) Network on 2014 March 6 (single dish) and imaged in milliarcsecond (mas) scales at 13, 7, 3.5, and 2.3 mm on March 22 (VLBI). We found that the degree of linear polarization increases from 10% to 13% at 13 mm to 350 mum and the EVPAs at all observing frequencies are parallel within <10° to the direction of the jet at mas scale, implying that the integrated magnetic fields are perpendicular to the jet in the innermost regions. We also found that the Faraday rotation measures RM are in a range of -6.5 × 102 ~ -2.7 × 103 rad m-2 between 13 and 3.5 mm, and are scaled as a function of wavelength: | {RM}| \propto {lambda }-2.2. These results indicate that the millimeter and sub-millimeter polarization emission are generated in the compact jet within 1 mas scale and affected by a Faraday screen in or in the close proximity of the jet.

[구 AGN-02] Morphological research on radio loud AGN 4C39.25 using KaVA observation

Hyemin Yoo[1,2], Bong Won Sohn[2,3], Sukyong K. Yi[1] and KaVA team
[1]Department of Astronomy, Yonsei University, Seoul, Republic of Korea, [2]Korea Astronomy and Space Science Institute, Daejeon, Republic of Korea , [3]University of Science and Technology, Daejeon, Republic of Korea

4C39.25 (0923+392) is a distant radio loud AGN placed at redshift 0.695. The motivation of our work is peculiar properties 4C39.25. Firstly, it has a conspicuous distinction of jet direction between kilo-parsec scale observation made by VLA (Kollgaard et al. 1990) and the parsec scale