

2016 전파 사용자회의 초록모음집

정태현	한국천문연구원
Multi-frequency AGN Survey with the KVN (MASK)	
KVN의 다주파수 동시관측 시스템을 이용한 위상보정 성능을 활용하여 22/43/86/129GHz 에서 활동성은하핵을 탐사하는 프로젝트에 대한 소개를 하고자 한다.	
김은혁	항공우주연구원
Korean VLBI Network (KVN) and Korean Lunar Exploration Program	
<p>A pathfinder lunar orbiter mission - a part of robotic lunar exploration program of Korea has been started very recently. Motivated by the president's vision on space exploration at 2013, the Korean lunar exploration program, which is one of the major governmental agenda has been significantly accelerated. The Korean lunar exploration program is expected to be performed in two-stage development: 1) Launching the Korea Pathfinder Lunar Orbiter (KPLO hereafter) by 2018 using a foreign launch vehicle. 2) Sending a lunar orbiter and a lunar lander with a rover using Korean Space Launch Vehicle (KSLV-II) based on key technologies developed in the first stage of lunar exploration program. The main objectives of KPLO mission are to develop and demonstrate the lunar exploration technologies and to study the fundamental features of the origin, formation and evolution of the Moon and its relationship to the Earth and other planets, asteroids in solar system as a whole. In order to reach the scientific goals, KPLO will be equipped with a handful of scientific payloads including a high resolution optical camera system. The remaining domestic scientific instruments have been selected as of March 2016: Wide-angle polarimetric camera (PolCam), Magnetometer (MAG), Gamma-ray spectrometer (GRS), and DTN (delayed tolerant network). A part of the mission goals of KPLO will be carried out based on international collaboration, and Korea Aerospace Research Institute (KARI) and NASA carried out a feasibility study at 2015 to find out any probable collaborative subject in robotic lunar mission. NASA is expected to support deep space communication and navigation techniques, a sort of essential components of deep space exploration. For the 2nd stage lander mission, however Korea should carry out whole mission with its own capability. It is known that the safe landing on the lunar surface needs complicated and higher level space technologies. In order to navigate the lander during the landing phase and to control the rover one has to have a precise determination of the lander and the rover. We expect that astrometric capability of KVN system would fulfill the required accuracy to control and navigate the lander and the rover. Recently NASA and Europe have used the interferometry system for deep space missions. In this talk we'll briefly introduce the Korean lunar exploration program and also propose ideas to utilize the KVN for the moon and/or deep space missions.</p>	

Tie Liu	한국천문연구원
The "TOP-SCOPE": Follow-up observations of Planck cold clumps with ground-based telescopes.	
<p>Stars form in dense regions within molecular clouds, called pre-stellar cores (PSCs), which provide information on the initial conditions in the process of star formation. The low dust temperature (<14 K) of Planck Galactic Cold Clumps (PGCCs) makes them likely to be pre-stellar objects or at the very initial stage of protostellar collapse. "TOP-SCOPE" are joint survey programs targeting at Planck Cold Clumps. "TOP", standing for "TRAO Observations of Planck cold clumps", aims at an unbiased CO/13CO survey of 2000 Planck Galactic Cold Clumps with the Taeduk Radio Astronomy Observatory 14-meter telescope. "SCOPE", standing for "SCUBA-2 Continuum Observations of Pre-protostellar Evolution", is a legacy survey using SCUBA-2 onboard of the James Clerk Maxwell Telescope (JCMT) at East Asia Observatory (EAO) to survey 1000 Planck galactic cold clumps at 850 micron. We are also actively developing follow-up observations with other ground-based telescopes (NRO 45-m, Effelsberg 100-m, IRAM 30-m. SMT, KVN, SMA, ALMA). We aim to statistically study the initial conditions of star formation and cloud evolution in various kinds of environments. I will present the progress and the future plans of this internationally collaborating project.</p>	
유현주	충남대학교
JCMT Large Program (Transient Search for Variable Protostars)	
<p>Low-mass stars form through gravitational collapse of dense molecular cores. Although gravitational collapse has been widely accepted as a key process for low-mass star formation, the rate at which a star gains most of its mass and the physics that drives the main phase of stellar growth is still unclear. Typical luminosity of observed protostars is ~ 10 times smaller than that of theoretical expectation based on steady accretion of mass. The episodic mass accretion can be a powerful solution for this luminosity problem. However, timescale and amplitude for variability at the protostellar stage is almost entirely unconstrained. The Transient Survey is a long term JCMT/SCUBA2 monitoring program to measure accretion variability of protostars in the 8 nearby star forming regions and understand the physics of the disk instabilities that drive this variability. In this talk, I will give an overview of project, provide progress report, and discuss about further plans and scientific potentials.</p>	

조세형	한국천문연구원
1. Status of the KVN Evolved Star Key Science Program / 2. Status of the KaVA Evolved Star Large Program	
<p>2014B 시즌의 선행 관측연구를 시작으로 2015A 관측시즌부터 본격적인 관측연구에 들어간 KVN Evolved Star Key Science Program은 2016A 관측시즌까지 16개 천체에 대한 단일경 및 VLBI 관측을 평균 2개월 단위로 수행해 오고 있다. 이 중 9개 천체에서 Source Frequency Phase Referencing (SFPR) 방법에 의한 H₂O 및 SiO 메이저의 중첩맵을 얻을 수 있었고 몇 개의 천체에 대해서는 그 분석과 과학적 해석을 진행하며 논문 작성을 시작하고 있다. 사용자회의에서는 전체의 진행상황을 발표할 예정이다. / 준규칙 변광성에서 post-AGB 별에 이르기까지 약 80개 천체에 대한 H₂O 및 SiO 메이저의 스냅샷 이미지 관측을 통한 통계적 연구를 목표로 하는 KaVA Evolved Star Large program은 2015B 시즌부터 본격적인 관측을 시작하였다. 2016A 관측시즌까지 우선순위에 따라 약 64 천체에 대한 관측을 수행하고 그 자료처리를 위한 파이프라인 S/W 개발 등을 추진하고 있다.</p> <p>여기에서는 현재의 진행상황을 보고한다.</p>	
권우진	한국천문연구원
BISTRO: B-fields In STar-forming Region Observations	
<p>We introduce a magnetic field survey of the Gould Belt clouds using the James Clerk Maxwell Telescope (JCMT) POL-2: B-fields In STar-forming Region Observations (BISTRO). POL-2 with SCUBA-2 on JCMT is a unique facility, as it is the only facility world-wide that can map the magnetic field within cold dense cores and filaments on scales of ~1000 AU in nearby star-forming regions, such as Taurus and Ophiuchus. It can provide a link between the B-field measured on arcminute scales by Planck and BLASTPOL and measurements made on arcsec scales by interferometers such as CARMA, SMA, and ALMA. BISTRO was awarded 224 hours toward 16 fields for the next 3 years and started to take data in the 2016A semester.</p>	
이창원	한국천문연구원
대덕전파천문대 운영상황	
<p>대덕전파천문대의 관측기기 및 시스템의 성능향상 과 운영상황 그리고 향후 계획을 소개한다.</p>	

이영웅	한국천문연구원
CO Survey of Inner Bar Region of the Milky Way	
<p>We present an initial observational result of the Inner Region of the Milky Way. We covered a region from L=12 to 15 degree and B=-1 to +1 degree, which was found to be one of the most crowded regions with molecular clouds and clumps. The observed lines are 12CO and 13CO (J=1-0), with a velocity resolution of 0.05 km/sec and a spatial resolution of 22". This region is one end of the bar of the Milky Way, thus a lot of star-forming activities are on-going. We will compare the physical status of the identified clumps with those of other regions, especially the outer part of the Galaxy. The survey itself was not finished as we did not get enough sensitivity of the region.</p>	
김종수	한국천문연구원
Update of the Korean ALMA project	
<p>The Korean community submitted 35 proposals as principal investigators to the Cycle 4 ALMA proposal call. There are 10 more proposals than the number for the Cycle 3. The increase is mainly due to the proposals submitted by students who took a special lecture for the ALMA proposal at the Seoul National University. Two ALMA papers written by Koreans as first authors were accepted. I will also briefly mention the progress of the development project for the spectrometer for the ALMA TP (Total Power) Array and a wide-band single pixel receiver.</p>	
김기태	한국천문연구원
Understanding high-mass star formation through KaVA observations of water and methanol masers	
<p>Although high-mass stars are fundamental in the evolution of galaxies, their formation mechanism is still poorly understood. This year we started a systematic observational study of the 22 GHz water and 44 GHz class I methanol masers in high-mass star-forming regions as a four-year KaVA large program. Our sample consists of approximately 100 high-mass young stellar objects (MH-YSOs) in various evolutionary phases, many of which are associated with two or three maser species. The primary scientific goal is to understand the dynamical evolution of HM-YSOs and their circumstellar structures by measuring spatial distributions and 3-dimensional velocity fields of the three maser species. We have been performing snap-shot KaVA imaging observations in search for suitable target sources for further multi-epoch observations. In this talk, we will present the progress report.</p>	

Archana Soam	한국천문연구원
Molecular line studies in BRCs using TRAO	
<p>We are carrying a survey of molecular line studies in nearby BRCs using TRAO facility in KASI. This study will help in understanding the kinematics of these clouds. Along with an aim to support the star formation activity in these regions, we would also try to establish the plausible link between the star formation activity and the observed external influence. These BRCs with and without star formation activities are also good candidates to investigate the radiation driven implosion process.</p>	
손봉원	한국천문연구원
KVN and KaVA polarimetry (포스터)	
TBD	
제도흥	한국천문연구원
KVN Phase calibration system development and installation	
<p>The phase stability is the most important characteristic in VLBI receiver. I will review the phase stability of KVN receiver system. KASI developed broadband phase calibration system for KVN 4 ch receivers and installed it recently. I will introduce the phase calibration system and show the measurement result of KVN receivers phase stability.</p>	
변도영	한국천문연구원
Current Status of KVN and KaVA - 2016	
TBD	
임기정	한국천문연구원
Star Formation and Gas Accretion in Nearby Galaxies (포스터)	
TBD	
민영철	한국천문연구원
KVN 확장을 위한 추가 안테나 및 연구센터 건설	
<p>현재 3기의 전파망원경으로 운영되는 한국우주전파관측망(KVN)에 1-2기를 추가하여 관측 정밀도를 2배 이상 증가시키며, 세계 최고의 밀리미터파 전파간섭계의 위상을 확고히 하고 자함. 첫 건설 부지로 두만강 하구 3국 중립지역의 유엔평화공원을 고려하고 있음.</p>	

이상성	한국천문연구원
Interferometric Monitoring of Gamma-ray Bright AGNs III: Results of Single-epoch Multifrequency Observations	
<p>We present results of single-epoch very long baseline interferometry (VLBI) observations of gamma-ray bright active galactic nuclei (AGNs) using Korean VLBI Network (KVN) at 22, 43, 86, and 129-GHz bands, which are part of a KVN key science program: Interferometric Monitoring of Gamma-ray Bright AGNs (iMOGABA). We selected a total of 34 radio-loud AGNs of which 30 sources are gamma-ray bright AGNs with their flux densities of 6 times $10^{-10} \sim \text{ph} \sim \text{cm}^{-2} \sim \text{s}^{-1}$, including 24 sources monitored by the Fermi Gamma-ray Space Telescope using the Large Area Telescope on board. The selected sources consist of 24 quasars, 7 BL Lacs, and 3 radio galaxies. Single-epoch multi-frequency VLBI observations of the target sources were conducted during a 24-hr session on 2013 November 19 and 20. All observed sources were detected and imaged at all frequency bands with or without a frequency phase transfer technique which enabled to detect and image 12 faint sources at 129-GHz, except for 0218+357 which was detected for only one baseline at all frequency bands.</p>	
최윤희	경희대학교
Mapping turbulent properties of star-forming molecular clouds down to the sonic scale: the preliminary results of observations and analysis	
<p>We aim to study the properties of turbulence in nearby star-forming molecular clouds (Orion A and Ophiuchus) in the full range of scales by mapping three sets of molecular lines that trace different densities (13CO 1-0 and C18O1-0; HCN 1-0 and HCO+ 1-0; and N2H+ 1-0 and CS 2-1) with the 16-pixel SEQUOIA receiver on the Taeduk Radio Astronomy Observatory (TRAO) 14 m telescope. We map the 20' _60' area of Orion A in HCN (1-0) and HCO+ (1-0) using the On-The-Fly (OTF) position-switching mode. To analyze this data, we apply statistical methods, the spectral correlation function (SCF) and principal component analysis (PCA), which are known to be useful to study underlying turbulent properties and to quantitatively characterize cloud structure. We will present the preliminary results of observations and analysis. For our analysis, we combine our TRAO maps with other molecular line maps obtained with the 45-m telescope of Nobeyama Radio Observatory (NRO). This work is part of one of the TRAO key science programs (PI: Jeong-Eun Lee).</p>	
Juan Carlos Algaba	한국천문연구원
A Flare of the OVV 1633+382	
<p>The OVV Quasar 1633+382 experienced a gamma-ray flare in the middle of 2013. With the KVN iMOGABA key science program we were able to monitor this source with VLBI observations at 22, 43, 86 and 129 GHz during the flaring period, finding also an increase of the flux on radio bands. Here we present preliminary results of the multi-band analysis.</p>	

이창훈	한국천문연구원
SEQUOIA-TRAO Receiver System	
<p>We present on the installation of the new 16-pixel focal plane array MMIC amplifier type receiver system instead of the old 15-pixel Schottky diode type array receiver for the TRAO(Taeduk Radio Astronomy Observatory) 13.7m radio telescope in 2015, which will observe fast astronomical imaging over the 85~116GHz band. This receiver was developed at the FCRAO in the early 2000's, The instrument was upgraded in 2014 to move the TRAO, such as the noisiest pixels, the 1st LO system, the cooling system etc. The upgraded receiver system arrived in the beginning of 2015, and we installed the system on the TRAO 14-m telescope in October 2015 after the system assemble and some receiver performance tests. The new installed array receiver system is found to be well performing with low system noise temperature around 170K at 100GHz and 420K at 115GHz in the winter season. And we install the 2nd IF converter modules with the narrow band(~60MHz) characteristic to permit observations at 2 frequencies simultaneously.</p>	
정일교	한국천문연구원
Star forming activities in the vicinity of the HII region G84.9+0.5	
<p>We present a study of molecular line toward the Galactic HII region G84.9+0.5 observed with the Taeduk Radio Astronomy Observatory (TRAO) 13.7-m radio telescope. According to the mapping results of 12CO, 13CO, and HCO+ J=1-0 line observations, we were able to delineate several molecular clouds along with line of sight, and most correlated features were detected at the velocity of about -41 km/s. The velocity components well agreed with the radio combination line emission, and the molecular clouds are located in the vicinity of the circular shaped radio continuum boundary with a small radius (~ 3'). From the radio observation, we were able to find the distinctive shell morphology at the border of the H II region in the molecular cloud. This shell like feature also coincided with the distribution of infrared emissions. In addition to this, the investigation of the Spitzer and Herschel infrared images, there are several dense molecular clumps associated IR point sources. At the northern area, especially, the very bright arched structure and several IR point sources were identified in Spitzer IR bands with dense molecular environment. In this region, we detect red- and blue-skewed CO emission lines such as molecular outflows with more than 10 km/s line width which might be the indication of the existence of the young stellar objects (YSOs). We examined the characteristics and properties of the HII region G84.9+0.5 and presenting some preliminary results</p>	

강현우	한국천문연구원
Current TRAO observation system and more	
<p>In January, 2016, TRAO has opened scientific observation with renewal system. New observation system is substituted with old one that has used over 20 years. It is, mainly operated with graphic user interface. A malfunctioned receiver control computer that had used by FCRAO is fixed and installed for reducing development time and getting stability. Backend control system is set up with commercial server computer. This presentation supports helpful information for users. Additional items that are considered for 2016-2017 season will be announced.</p>	
조일제	UST/한국천문연구원
Sgr A* centroid shift	
<p>The Galactic center, Sagittarius A* (Sgr A*), is the closest supermassive black hole and emits synchrotron radiation. It provides great opportunity to study the origin of mm/sub-mm emission. Currently, two competing models have been suggested as a jet base and a radiatively inefficient accretion flow (RIAF). To unveil the properties, the extremely high resolution($\sim 10\mu\text{as}$) corresponding to the projected Schwarzschild radius of $\sim 0.1\text{AU}$ is necessary. With KVN, a jet model can be tested by multi-frequency simultaneous observations because the optically thick surface in a jet (i.e. radio core) moves toward the center at a higher frequency. We conducted 8 observations with KVN at 43/86GHz in 2015, and found that the measured positional shift to the reference calibrator, J1744-3116, was ~ 0.3 mas to the south of Sgr A* using the source frequency phase referencing (SFPR) at Q/W bands for the first time. With the result, in the future, we will attempt to measure the variation of source position shifts that can constrain the direction of approaching jets and the variability of black hole activity of Sgr A*.</p>	
심현진	경북대학교
STUDIES: SCUBA-2 Ultra Deep Imaging EAO Survey	
TBD	
하지성	국립고흥청소년우주체험센터
고흥전파간섭계 소개와 활용방안	
<p>현재 고흥우주체험센터에 설치된 전파간섭계시스템과 현재 진행하고 있는 프로그램을 소개한다. 전파간섭계시스템을 교육적으로 활용할 수 있는 아이디어와 활용 방안에 대해 논의하고자 한다.</p>	

이혜인	경희대학교
Radio and Near-Infrared Observations molecular clouds in NGC6822 (포스터)	
<p>Since dwarf irregular galaxies of low metallicity are small and have no geometrical rotational force, they are appropriate for studying interaction between stars and Interstellar Medium (ISM). NGC6822 is a dwarf irregular galaxy in the Local Group and it is not influenced by the tidal force of our Galaxy. Hubble V is the brightest of several H II complexes in this galaxy. In case of our Galaxy, the CO-to-H₂ conversion factor is calculated by using virial theorem and gamma-ray emission line. Dwarf irregular galaxies show weak CO emissions in spite of the abundant H gas and the active star formation. We observed Hubble V and Hubble X using HARP of JCMT. We also observed near-IR emission lines from Hubble V in H and K bands using IGRINS. In this poster, we show preliminary results of these observations.</p>	
강성주	한국천문연구원
A Search for High-mass Star Forming Region Near Isolated Small H II Region	
<p>We studied to investigate to search for the possible high-mass star forming region KR 140 and associated filamentary star-forming region. KR 140 is about 6 pc diameter of H II region located at a distance of about 2 kpc. It is close to, but apparently isolated from the large W3/W4/W5 star formation complex. A filamentary feature near by KR 140 is very unique especially near the H II region. Many of previous studies focused on the KR 140 H II region itself but in this research we traced high density gas using HCN and HCO⁺ with TRAO. In addition to that, we make a CO maps for measuring the size and distribution of molecular cloud around KR 140 and its filamentary. In this talk, I will present preliminary result of TRAO observation of KR 140 and its filament features in order to investigate the star-formation scenario as well as the shock and outflow dynamics.</p>	

백준현	연세대학교
Measuring synchrotron age of central AGNs in cool-core and non cool-core clusters	
<p>We report the results from our KVN observations using phase referencing and multi-frequency radio analysis of central galaxies in cool-core and non cool-core clusters. The main goal is to probe the synchrotron radiation age of central cluster AGNs as a function of the host cluster cooling environment. From the previous observations using the KVN, we find most cool-core AGNs with pc-scale jet structures at 22 GHz which non cool-core AGNs do not show. This indicates that cool-core AGNs are likely to be recently (re)activated, which could have been powered by the accretion of cool gas. In order to confirm our finding more quantitatively, we have obtained measurements at higher radio frequencies of the same targets, which is crucial in determining the synchrotron radiation age. Considering the radio brightness of our sample, we have carried out multi-frequency KVN observations applying various phase referencing (PR) techniques such as source PR (SPR), frequency phase transfer (FPT), and source frequency PR (SFPR). In this presentation, we report the results of KVN PR observations and discuss its applicability. Based on these results, we also discuss the evolution of AGNs in the centre of clusters of various cooling environments.</p>	
윤영주	한국천문연구원
Astrometric imaging of the H ₂ O and SiO masers around the late-type stars using KVN	
<p>We present the results of simultaneous observations of the H₂O and SiO masers emitted from the circumstellar envelopes (CSEs) of the late-type stars. These observations have been carried out at four frequency-bands (K, Q, W and D bands) using KVN since August 2014 and designed to apply the source frequency phase referencing (SFPR) technique to the data reduction processes. The relative spatial distributions between the H₂O and SiO masers are precisely determined from the SFPR method, which is closely related with the pumping mechanism of these masers. The variabilities of not only the spatial distribution but also the intensity of the individual maser emission are also obtained from our multi-epoch observations, which enable us to study the physical environments of the CSEs of the late-type stars along the stellar phase. From our study, the simultaneous multi-band observation of KVN is proved to be powerful to study the characteristics of the masers around the late-type stars.</p>	

박종호	서울대학교
Polarimetry of AGNs with KVN up to 86 GHz: Stability of D-terms and feasibility of obtaining Rotation Measure maps	
<p>We present polarization maps of several bright AGNs after calibration of instrumental polarization and the absolute position angle of the polarization. The D-terms are usually smaller than 15% at $< \sim 43$ GHz but sometimes more than even 30% at 86 GHz, showing large variations depending on the observed sessions and the used calibrators. Such uncertain D-terms probably comes from invalid similarity assumption used for D-term measurements when using bright, polarized calibrator such as 3C 273 and relatively large errors in the cross-hand visibilities at 86 GHz. However, we see an indication of moderate level of D-terms ($< 20\%$) which is rather stable in time at 86 GHz, considering that various ranges of D-terms are allowed to give good solutions because of a small number of baselines and relatively large errors in the data. The polarization maps of all our sources show a good consistency with MOJAVE / BU monitoring program's images even at 86 GHz, allowing us to probe the change of polarization angles in the inner jets of many sources. We discuss a possibility and reliability of obtaining Faraday rotation measure maps of AGN jets using KVN.</p>	
이태석	서울대학교
KVN 8Gbps correlation	
We present the comparison between the correlation of 1Gbps and 8Gbps of KVN observation performed this Spring.	
김광태	충남대학교
구석기시대인의 은하중심 연구	
<p>라스코 동굴에 그려진 구석기시대 벽화 가운데 유니콘을 은하중심 그림으로 동정하고 이를 통해 현대전파천문학의 은하중심 연구의 기본 철학과 서로 비교해 보았다.</p>	

윤동환	서울대학교
Simultaneous SFPR monitoring observations of H ₂ O and SiO masers toward VX Sgr	
<p>We performed simultaneous observations of H₂O and SiO masers toward VX Sgr using the Korean VLBI Network (KVN) and Source Frequency Phase Referencing (SFPR) method. The observations were carried out at 9 epochs from 2015 September to 2016 March. The relative locations of the SiO with respect to the H₂O maser emission were determined at two epochs by SFPR for the first time. The H₂O masers show well developed asymmetric outflow features which are spread up to ~300 mas in diameter. On the other hand, the SiO masers show a ring-like structure close to the central star with ~ 30 mas diameter. The SFPR observational results provide similar relative locations of H₂O and SiO maser features. These superposed maps of H₂O and SiO masers lead us to investigate the development of outflow motions from relatively spherical SiO maser regions close to central star to aspherical H₂O maser regions according to optical phase of stellar pulsation together with the prediction of the position of central star.</p>	
정은정	한국천문연구원
Report on the 1st year of TRAO Multi-Beam Survey of Nearby Filamentary Molecular Clouds	
<p>How dense cores and filaments in molecular clouds form is one of key questions in star formation. To challenge this issue we started to make a systematic mapping survey of nearby molecular clouds in various environments with TRAO 14-m telescope equipped with 16 beam array, in high (N₂H⁺, HCO⁺ 1-0) and low (C₁₈O & ¹³CO 1-0) density tracers (TRAO Multi-beam Legacy Survey of Nearby Filamentary Molecular Clouds, PI: C. W. Lee). We pursue to dynamically and chemically understand how filaments, dense cores, and stars form under different environments. We have performed On-The-Fly (OTF) mapping observations toward L1251, southern part of Perseus MC, and a section of Serpens MC from January to May, 2016. Within ~240 observing hours, ~3.5 square degree area map of ¹³CO and C₁₈O were simultaneously obtained with S/N of > 10 in a velocity resolution of ~0.2 km/s. Dense core regions of ~1.7 square degree area in total where C₁₈O 1-0 line is strongly detected were also mapped in N₂H⁺ 1-0 and HCO⁺ 1-0. The L1251 and Perseus MC are known to be low- to intermediate-mass star forming clouds, while the Serpens MC is reported as one of the active low-mass star-forming clouds. The observed molecular filaments will help to understand how the filaments, cores and eventually stars form in a low- and/or intermediate-mass star-forming environment. Detailed analysis on our new data is ongoing. In this talk, I'll give a brief report on the observation and show preliminary results.</p>	