## [Ⅳ-1-5] 칠정산 내편과 외편의 일식 예보 정확도 비교 분석

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칠정산 외편은, 비록 한양의 위도에 맞는 역법은 아니지만, 일식 예보의 정확도가 조선 전기에 사용된 다른 어떤 역법보다 높았다고 알려져 있다. 칠정산 내편은 한양의 위도에 맞는 자주적 역법으로 알려져 있으나, 일출입이나 중성 계산이 아닌, 일식 계산의 경우에도 한양의 위도에 맞는 역법으로 보아야 하는지에 대해서는 실증적인 연구가 없었다. 이 연구에서는 칠정산 내편의 일식 계산의 전 과정을 전산화하여 이미 연구한 칠정산 외편의 일식 예보값 (김동빈 2009) 및 현대 계산 결과와 상호 비교하였다. 그 결과 칠정산 내편의 일식 예보는, 베이징과 한양의 시차 (時差)를 감안하더라도, 그 정확도가 외편에 비해 떨어지며, 일식 계산의 기준 위치 또한 한양이 아닌 베이징임을 확인하였다.

### ■ Session : 천문우주 Ⅲ
### 4월 30일(금) 15:20 - 16:40  제1발표장

## [Ⅴ-1-1] New parametric approach to decomposition of disk averaged spectra of potential extra terrestrial planet I. Surface type ratio of the Earth

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We built 7 potential extra-terrestrial planets including the full 3D Earth model with various surface types and 6 planet models, each with uniform surface characteristics. The surface types include ice, tundra, forest, grass, ground and ocean. We then imported these 7 planets into integrated ray tracing(IRT) model to compute their disk averaged spectra and to understand the spectral behavior depending on the geometrical view, illumination phase and seasonal change. The IRT computation show that the 6 planets with uniform surfaces exhibit clear spectral differences from that of the Earth. We then built a phase and seasonal DAS database for the 6 uniform surface planets and used them for parametric spectral decomposition technique to derive the Earth DAS. This computation resulted in the first potential solution to the surface type ratio of the Earth compared to the measured earth surface type ratio. The computational details and the implications are discussed.

## [Ⅴ-1-2] Flux Monitoring of Intraday Variable Sources with KVN Yonsei Radio Telescope

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We present the results of flux monitoring of BL Lac object 0716+71 and 0954+65 at 22GHz and 43GHz. Both of the flat spectrum radio sources are known as Intraday variables (IDVs) which are characterized by fast flux variation on time scales of a day or less. In general, the IDV phenomenon is interpreted as the effect of refractive scintillation in the interstellar medium or the evidence of source intrinsic flux variation. The observations were made simultaneously at 22GHz and 43GHz with KVN Yonsei 21m radio telescope.

## [Ⅴ-1-3] Globular Cluster Systems of Early-type Galaxies in Low-density Environments

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We present the properties of globular cluster systems for 10 early-type galaxies in low density environments obtained using deep images from the Advanced Camera for Surveys (ACS) on the Hubble Space Telescope (HST). Using the ACS Virgo Cluster Survey as a counterpart in high-density environments, we investigate the role of environment in determining the properties of their globular cluster systems. We detect a strong colour bimodality of globular cluster systems in half of our galaxy sample. It is found that there is a strong correlation between the colour and richness of globular cluster populations and their host galaxy luminosities: the less bright galaxies possess bluer and fewer globular clusters as also seen in rich cluster environments. However, the mean colour of globular clusters in our field sample are slightly bluer than those in cluster environments at a given galaxy luminosity, and the colour of the red population has a steeper slope with absolute luminosity. By employing the YEPS simple stellar population model, the colour offset corresponds to metallicity difference of $\Delta[Fe/H] \sim 0.15 - 1.20$ or an age difference of $\Delta$age $\sim 2$ Gyr on average, implying that GCs in field galaxies appear to be either less metal-rich or younger than those in cluster galaxies. Although we have found that galaxy environment has a subtle effect on the formation and metal enrichment of GC systems, host galaxy mass is the primary factor that determines the stellar populations of GCs and the galaxy itself.