

[SO11] An analysis of visible spectra of Titan with BOES considering CH₄

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We have obtained high-resolution spectra of Titan using BOES (Bohunsan Optical Echelle Spectrograph) on the BOAO 1.8-m telescope. The raw Titan spectra contain telluric and solar absorption/emission lines. We used Kitt Peak solar atlases in order to remove the telluric and solar lines effectively. The reduced spectra have been compared with the laboratory data of CH₄ in literature. Preliminary results on the identifications of CH₄ lines will be presented.

[SO12] Simulations of Cometary Dust Dynamics

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The neckline and trail are two interesting cometary features that attract controversies recently. With analytical means Kimura and Liu(1977) followed Kepler motion of dust particles released from nucleus and interpreted the neckline feature as a substructure of tail. The trail was identified by IRAS (Sykes and Walker 1992) in the infrared first, and was later detected by Ishiguro et al.(2002) in the visible as well. After being released from the nucleus, dust particles with size larger than about 1mm form the trail, while the ones smaller than that lie in the tail. By means of numerical simulations we will directly integrate orbit of the cometary dust particles and differentiate the two features in terms of the size and ejection velocity. The simulation results will be applied to our trail observations made with the Kiso schmidt telescope, Japan and also with the CFHT, Hawaii.