validate the prediction of the FEM for high frequency jitter analysis due to reaction wheel. The principle is to measure structural transfer functions between the input disturbances at RWA base plate and the accelerations near the end tips of payload, in a configuration close to the operational model. The spacecraft shall have to be suspended, in order to be representative of on-orbit boundary conditions. The results of the test shall be compared to the output of the FEM analysis, and if needed, local upgrades of the FEM and/or margin policy shall be defined in order to guarantee a good test/FEM consistency. Test results were compared with the transfer functions of the FEM, which is globally tuned based on the results of vibration test and consequently have lower damping coefficients values than 1% in the frequency range of 60~200Hz. The damping coefficients estimated from the figures of FRF test results are different from the theoretical FEM, but the magnitude trend of FRF of the test results is somewhat similar with the analytical, it is expected that the overall jitter effect of final estimation is nearly same with the preliminary analysis result in which the damping coefficients were assumed to be 1% for all modes in FEM.

[Ⅳ-2-4] Simple and Flexible Temperature Control System for Space Environment Test

Sang-Hoon Lee, Hyokjin Cho, Hee-Jun Seo, Guee-Won Moon, and Seok-Weon Choi
Space Environment Test Department, KARI

The temperature control system which is using liquid and gaseous nitrogen has been known as the most economical system to simulate space temperature condition due to relatively not expansive price of the liquid nitrogen (less than 0.2 USD per liter). And, among these systems, the closed loop system which circulates compressed nitrogen gas come from sprayed liquid nitrogen by blower and makes a target temperature with heat from an electrical heater and flow rate of liquid nitrogen is prevail all over the world. But, this complete closed loop system requires expansive equipments such as blower, heater, and liquid nitrogen injector, and special maintenance on the system. Therefore, KARI is developing efficient and simple open loop system which utilizes liquid and gaseous nitrogen with eliminating a special blower and other expansive units. In this study, this open loop system with more efficiency and flexibility will be designed and introduced.

■ Session Ⅴ-1 : Astronomy & Cosmology 2
Thursday, 23 October [10:00-11:15]

[V-1-1] A Photometric Study of the W UMa-type Contact Binary GX Aurigae

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The CCD photometric observations of the W UMa type contact binary GX Aur were performed for 33 nights from 2004 to 2008 using a 2K CCD camera and Johnson BVRI filter system attached to the 61cm reflector at Sobaeksan Optical Astronomy Observatory (SOAO). From our observations, the first BVRI light curves of GX Aur were completed and eight new times of minima (primary: 4, secondary: 4) were obtained. All the times of minima including our timings were collected and analyzed to see the dynamical behavior of GX Aur system. Intensive analysis of our BVRI lightcurves with the recent Wilson-Devinney binary model shows that GX Aur is an over-contact binary whose component stars have equal mass and time-variable spots.

[V-1-2] Period study of 1RXS J062518.2+733433 from the X-ray and optical data

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1RXS J062518.2+733433. The X-ray data was obtained in April 6, 2006 with the XMM-Newton and the optical data with CCD R filter at the 1m telescope of the Lemonsan observatory in 2005-2006 for 11 nights. This source is classified as a magnetic cataclysmic variable with a spin period of 1187.3 s in the optical region. We determine the spin period to be 1187.26 ± 0.11 s using the X-ray data, which is well consistent with the optical studies. However, we find that the pulse profile of the data (0.2-10 keV) folded at the period is different from the quasi-sinusoidal optical profile and is dependent on the selected X-ray energy bands. The results of period searching with times of extrema will be also presented.

[V-1-3] Neutron Capture Elements in Meltal-poor Giants

Ye Rim Lee[1], Jae Woo Lee[2], Jeong Deok Lee[2] and Ji Na Lee[1]
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We present elemental abundances of 12 red giants obtained with the BOAO 1.8m telescope and its fiber-fed echelle spectrograph. We perform the abundance analysis using the Kurucz model atmosphere and MOOG. Comparisons of our alpha- and neutron-capture elemental abundances and those in globular clusters and nearby dwarf galaxies will be presented.

[V-1-4] Galactic Warps in Live Triaxial Halos

Myoungwon Jeon[1], Sungsoo S. Kim[1], and Hong Bae Ann[2]

[1]Kyung Hee University, [2]Pusan National University

We investigate the evolution of the initially tilted, self-gravitating disks in a live axisymmetric or triaxial halo. Our study shows how the axisymmetric and triaxiaility of the halo alters the evolution of the warp compared to the spherical case. We attribute the development of warps to the torque between a halo and disk and that between the inner and outer regions of the disk. We discuss if the triaxial halo can be responsible for the formation and maintenance of the warp phenomena even in the presence of dynamical friction between the disk and the halo.

[V-1-5] Introduction of the CFIRB Observations with AKARI/FIS

Woong-Seob Jeong[1], Hyung Mok Lee[2], Chris Pearson[3], Takao Nakagawa[4], Shuji Matsuura[4], Mitsunobu Kawada[5], Sang Hoon Oh[2], Sungho Lee[1], Ho Seong Hwang[6], and Hideo Matsuhara[4]

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The Cosmic Far-Infrared Background (CFIRB) contains information about the number and distribution of contributing sources and thus gives us an important key to understand the evolution of galaxies. In order to detect CFIRB fluctuation effectively, we have to analyze the confusion carefully which sets a fundamental limit to the deep observations. From our deep observations, we can compare the background fluctuation via observations of regions at different Galactic latitudes. Our comparative study between estimated confusion levels from our observations and those from our model enables us to understand the nature of CFIRB. We introduce our CFIRB observations and report the preliminary results.

■ Session VI-1 : Space Environment 2
Thursday, 23 October [11:25-12:25]

[VI-1-1] Statistical study of phase reversal locations on the SC-associated preliminary impulse

Suk-Kyung Sung, Khan-Hyuk Kim, and Kyung-Suk Cho

Korea Astronomy and Space Science Institute, Korea

In this study, we investigate the magnetic latitude of phase reversal on the sudden commencement (SC)-associated preliminary impulse with 267 SC events using the ground magnetometer data of the IMAGE from 1997 to 2005. During SC event, geomagnetic fields are affected by various currents flowing in the magnetosphere and/or ionosphere. In particular, high-latitude geomagnetic field variations are significantly dominated by the change of SC-associated field aligned current (FAC). Until now, however, there are few studies to examine where the location of the FAC in the ionosphere is and what determines the location of the FAC. The location of the SC-associated FAC can be examined by using magnetometer data obtained from high-latitude stations distributed along the same magnetic meridian. The phase reversal locations are concentrated two regions, ~62 deg (L ~ 4.5) and ~70 deg (L ~ 8.5) in magnetic latitude. If FAC is a result of a mode conversion from fast mode to Alfven mode, then the FAC location could be determine by the duration time of the input energy. When we use the rise time, dT, as the input energy, there is no relationship between dT and the location where the first pulse of SC is reversed. We consider other factors such as local time and solar wind condition.

[VI-1-2] The temporal variability of the longitudinal plasma density structure in the low-latitude F -region.

S.-J. Oh[1], H. Kil[2], and Y.-H. Kim[3]

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Formation of longitudinally wave-like plasma density structure in the low-latitude F region is now a well-known phenomenon from the extensive studies in recent years. Observations of plasma density from multiple satellites have shown that the locations of the crests of the plasma density that are seen to be stationary during daytime are shifted after sunset. This phenomenon has been understood to be caused by eastward drift of the ionosphere at night. However, the eastward drift velocity of the ionosphere after sunset is not sufficiently large enough to explain the day-night difference in the longitudinal density structure. The