

Abstracts of Oral Presentations

■ Session I : Invited Talk

Wednesday, 22 October [13:10–14:10]

[I-1-2] Mass Media and Space Science

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Media company is not a business which sells news and information but a company sells audience's attention. Advertisers estimate audience's quantity and quality which pay attention to media and pay the cost. Thus drawing audience's attention is a natural and instinctive behavior for survival of media company. News doesn't deliver the fact just as it. That's impossible. News is a commodity made by processing and selection of the media company and journalist. On the process, judge of values is involved and limitation of time and place of media is considered. If scientists understand media's character truly, their misunderstanding about media company and journalist may be cleared up. In this society, media is not a being to ignore, particularly for big science like space science which spends huge public capital. Nowadays, space science meets the time to take the leap in Korea. However that can be crisis cause of uncertainty of science activity. When the crisis which no one desires happens, preparation needs for new opportunity. We can take the crisis as a chance. Understanding about media and public will be the first step for this preparation.

■ Session II-1 : Astronomy & Cosmology 1

Wednesday, 22 October [14:20–15:35]

[II-1-1] How strong magnetic fields can be in AGN accretion flows

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Radio and X-ray observations of radio lobes in galaxy clusters indicate large energies stored in the magnetic fields in the radio lobes. These magnetic fields are undoubtedly produced and amplified by the accretion onto the central supermassive black hole. I review recent progress and remaining problems in our understanding of the ways how these magnetic fields can be produced and amplified in the accretion disks and what can be the limiting strength of the magnetic field. The major remaining issue is how ordered magnetic spirals (or jets) can emerge from the turbulent small scale magnetic fields produced by MRI. Another issue is the ratio of the axial to the azimuthal magnetic field in jets.

[II-1-2] Chemical composition of Am stars: RR Lyn and ρ Pup

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We present the results of the investigations of high dispersion spectra of two stars. These are the eclipsing binary RR Lyn, and ρ Pup - the prototype of the group of pulsating variables. The spectra were obtained at 1.8 m Bohyunsan observatory telescope, and 8.2 m VLT. We found the chemical composition. The both components of RR Lyn are Am stars (metallic line stars), but the abundance patterns of the components are not similar - the iron abundance and the abundances of other elements are surely different. For few elements the differences exceeds 1 dex. We found the abundances of 56 chemical elements in the atmosphere of ρ Pup. This is one of the best stellar abundance patterns. It permits to investigate the role of the charge-exchange reactions in stellar atmospheres. These reactions can produce the abundance anomalies in the atmospheres of B-F type stars. These reactions can be one of the sources of galactic cosmic rays, and the reason of the braked rotation of A-F type chemically peculiar stars.

[II-1-3] Pioneer's acceleration and its possible implication at cosmological scales

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The anomalous acceleration of Pioneer-10 and Pioneer-11 is known since 1992. These spacecrafts show the unexplainable acceleration near 10^{-7} cm/sec² in the direction to the Sun. Later the unknown acceleration of the same order was found in the motion of Ulysses in its motion from the Jupiter to Mercury, and in the motion of Galileo, NEAR, Cassini, Rosetta, and Messenger at the flybys of these spacecrafts near the Earth. The possibility of unexplainable acceleration near 10^{-7} cm/sec² was discussed also for stellar globular clusters and for galaxies. We propose the empirical formula for taking into account this acceleration and overview the predictions of this formula at cosmological scales. Several unknown observational effects are found. One of these effects is the anomalous redshifts in the clusters of galaxies. It was known previously only for small groups of galaxies. We show the existence of anomalous redshifts in the clusters of galaxies using the spectral observations of near one million galaxies from the SLOAN 5th data release.