Session:	**[B4A-6] S6 : Observing Facilities and International Collaborations**
Date:	August 21, 2014 (Thursday)
Time:	11:00~12:30
Room:	Room F (Room 108)
Chair:	Hyung Mok Lee (Seoul National University)

[B4A-6-1] **11:00~11:20**

[Invited] The KAGRA Project

Takaaki Kajita (University of Tokyo, Japan)

KAGRA is a large-scale cryogenic gravitational wave detector, which is under construction in Kamioka, Japan. The status and plan of the KAGRA project will be discussed

[B4A-6-2] **11:20~11:40**

[Invited] LiteBIRD - CMB Polarization Mission for Detecting Primordial Gravitation Wave

Masashi Hazumi (High Energy Accelerator Research Organization, Japan)

LiteBIRD is a satellite to map the polarization of the cosmic microwave background (CMB) radiation over the full sky at large angular scales with ultimate precision. Cosmological inflation, which is the leading hypothesis to resolve the problems in the Big Bang theory, predicts that primordial gravitational waves were created during the inflationary era. Measurements of polarization of the CMB radiation are known as the best probe to detect the primordial gravitational waves. The LiteBIRD working group is authorized by the Japanese Steering Committee for Space Science (SCSS) and is supported by JAXA. It has more than 60 members from Japan, USA, Canada and Germany. Studies in the working group are in progress toward the mission definition review, with a target launch year in early 2020's. The scientific objective of LiteBIRD is to test all the representative inflation models that satisfy single-field slow-roll conditions and lie in the large-field regime. To this end, the requirement on the precision of the tensor-to-scalar ratio, r, at LiteBIRD is equal to or less than 0.001. In case of large r values, as suggested by BICEP2, LiteBIRD will be able to scrutinize the power spectrum of the B-mode polarization to further narrow-down inflationary models. The design of the LiteBIRD system is driven by these scientific goals. A 3-year full sky survey will be carried out for 6 frequency bands between 50 and 320 GHz to achieve the total sensitivity of 1.8 microKarcmin with the angular resolution of 30 arcmin at 150 GHz. The key components of the mission payload include a half-wave plate system for signal modulation, two reflective mirrors with a diameter of about 60 cm, an array of superconducting polarimeters read out with high multiplexing factors in the frequency domain, and the cryogenic system to provide the 100 mK base temperature

[B4A-6-3] **11:40~12:00**

[Invited] Constraining the Binary Inclination Angle Using Multi-Detector GW Observations

Archana Pai (Indian Institute of Sience Education and Research, India)

Compact binary mergers are the strongest candidates for the progenitors of Short Gamma Ray Bursts (SGRBs) for the advanced GW detectors. If a gravitational wave (GW) signal from the compact binary merger is observed in association with a SGRB, such a synergy can help us understand many interesting aspects of these bursts. In this talk, we discuss the accuracies with which a world wide network of gravitational wave interferometers would measure the binary inclination angle (angle between the angular momentum axis of the binary and observer's line of sight). We compare the projected accuracies of GW detectors to measure the inclination angle of double neutron star and neutron star-black hole binaries for different astrophysical scenarios.

[B4A-6-4]	12:00~12:15

Towards Gravitational Wave Detection with the Parkes Pulsar Timing Array

George Hobbs (CSIRO Astronomy & Space Science, Australia)

The Parkes Pulsar Timing Array project has been ongoing since the year 2005. The main goal of this project is to make a direct detection of ultra-low frequency gravitational waves. In my talk I will describe the current status of our data sets. These data sets are obtained by observing 25 millisecond pulsars with the most modern instruments at the Parkes observatory. They are currently the most sensitive data sets available for searching for gravitational waves in the pulsar-timing band. Much of the data is publically available and I will explain how any astronomer can access and make use of the data.

I will highlight our recent stringent constraint on existence of a background of gravitational waves and describe the astrophysical implications of this result. I will also describe searches for individual supermassive binary black hole systems that are expected to emit gravitational waves and will also describe searches for gravitational wave burst events with memory.2

I will discuss our plans for the future and describe when we expect to be able to make a direct detection of gravitational waves. I will place the project in context with other pulsar timing array projects on existing (such as the International Pulsar Timing Array) and future (with the FAST telescope and SKA) telescopes.

Poster Session	12:15~12:30
Chair: **Hyung Mok Lee** (Seoul National University)	