has been formed to outline the framework of the EAO-Subaru partnership, and the working group report has been prepared. In this talk, I will explain the proposed partnership framework in the working group report. Inputs are very welcome from KAS members about the proposed framework.

[구 AT-03] Populations Accessible to Gravitational Wave and Multi-Messenger Astronomy Within 10 Years

Chunglee Kim
Ewha Womans University

Gravitational-wave (GW) sources for the next decades would be in majority binaries consisting of neutron stars and/or black holes reside in the extragalactic environment. For example, GW170817 was the first extragalactic neutron star - neutron star binary found by GW observations and it was proved the power of multi-messenger astronomy (MMA) including the KMTNet observations. With the ever increased sensitivity, the 3rd observation run (O3) led by the advanced LIGO and advanced Virgo this year aims to search for more 'standard' populations as well as 'exotic' ones expected by stellar evolution. I will present highlights of on-going efforts by researchers in Korea and those in abroad for estimating physical parameters of a source. Mass, spin, distance, and location are prerequisite information to constrain theoretical understanding of the source formation and evolution. Furthermore, these information are to be shared with the international community for follow-up multi-messenger observations. I will present the observational accuracy expected for the future GW observations and discuss their implications. If time allows, I will make a few remarks on prospects of O3 with KAGRA collaborations, which many domestic researchers are closely involved in.

[구 AT-04] Observing strategy for electromagnetic counterpart of gravitational wave source

Gregory SungHak Paek, Myungshin Im, and SNU GW EM follow-up team
CEOU, Astronomy program, Department of Physics and Astronomy, Seoul National University, Republic of Korea

Recent observation of the neutron star merger event, GW170817, through both gravitational wave (GW) and electromagnetic wave (EM) observations opened a new way of exploring the universe, namely, multi-messenger astronomy (MMA). One of the keys to the success of MMA is a rapid identification of EM counterpart through optical/NIR observations.

We will present the strategy for prioritization of GW source host galaxy candidates to be observed with narrow-field optical telescopes. Our method relies on recent simulation results regarding plausible properties of GW source host galaxies and the low latency localization map from LIGO/Virgo. We will show the test results for both NS merger and BH merger events using previous events and possible future events and describe observing strategy with our facilities for GW events during the ongoing LIGO/Virgo O3 run.

[구 AT-05] Sirius: The KASI-SNU Optical Intensity Interferometer

Junghwan Oh[1], Sascha Trippe[1], Jan Wagner[2], Do-young Byun[3]
[1]Seoul National University, [2]Max-Planck-Institute for Radio astronomy, [2]Korea Astronomy and Space Science Institute

Optical intensity interferometry, developed in the 1950s, is a simple and inexpensive method for achieving angular resolutions on microarcsecond scales. Its low sensitivity has limited intensity interferometric observations to bright stars so far. Substantial improvements are possible by using avalanche photodiodes (APDs) as light detectors. We present here the results of laboratory measurements with a prototype astronomical intensity interferometer using APDs in continuous ("linear") detection mode - arguably, the first of its kind. We used two interferometer configurations, one with zero baseline and one with variable baseline. Using a superluminous diode as light source, we unambiguously detected Hanbury Brown-Twiss photon-photon correlations at very high significance. From measuring the correlation as function of baseline, we measured the angular diameter of the light source, in analogy to the measurement of the angular diameter of a star. Our results demonstrate the possibility to construct large astronomical intensity interferometers that can address a multitude of astrophysical science cases.

[구 AT-06] PSF Deconvolution on the Integral Field Unit Spectroscopy Data

Haeun Chung (정하은)[1,2] and Changbom Park (박창범)[2]
[1]Dept. of Physics & Astronomy, Seoul National University, [2]School of Physics, Korea Institute for Advanced Study