

Plans of future research

Ryo Kato

Signals with the same amplitude have been found in all pulsars. Various investigations are underway to determine whether this signal is derived from the gravitational waves. In future study, we investigate whether the circular polarization mode of the gravitational waves can be detected using the observation data. Then we clarify how the linear polarization of the gravitational waves change the arrival time of the light. Furthermore, we plan to actively participate in the Indian Pulsar Timing Array project.

Detection of circular polarization mode of gravitational wave

We aim to detect the circular polarization mode of the gravitational waves using pulsar. The circular polarization mode cannot be detected by conventional data analysis methods. Therefore, it is significant to aim at the detection of the circular polarization mode.

Construction of detection theory for linear polarization mode of gravitational wave

We investigate how the linear polarization mode of the gravitational waves changes the observation data of pulsars. It is known that the linear polarization mode must have some degree of anisotropy. Therefore, we also clarify how difficult it is to detect the linear polarization mode compared to the unpolarized mode and the circularly polarized mode.

Estimating the accuracy of determining the location of gravitational wave source

We show that if the distance of the pulsar can be precisely measured by VLBI observations, the accuracy of determining the location of the gravitational wave source will be dramatically improved.

Pulsar observation

We will participate in the pulsar observation project in India. We aim to discover the unknown behavior of pulsars.