

Plans of future research

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In September 2020, the NANOGrav (North American Nanohertz Observatory for Gravitational Waves) found stochastic signals with the same amplitude in all pulsars. However, it is not clear whether this signal is due to the gravitational waves. In future study, we investigate whether the circular polarization mode of the gravitational waves can be detected using the observation data of the NANOGrav. Then we clarify how the linear polarization of the gravitational waves change the arrival time of the light.

【Detection of circular polarization mode of gravitational wave】

In this study, 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】

In this study, 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.