



東北大学 宇宙創成物理学国際共同大学院プログラム

GP-PU (Graduate Program on Physics for the Universe) Seminar

# “Theory of gravity in the era of gravitational-wave observations”

by Atsushi Naruko (YITP, Kyoto)

Time and Date: 10:00-12:00, January 18th 2021

Registration: <https://us02web.zoom.us/meeting/register/tZlocu-prTwqHdbpgQ7KkIBMSuG8B0BgjgZA>

## ▶ Abstract

Gravitational waves, of which the existence was first predicted by Albert Einstein in 1916, waited 100 years to finally confront direct detection in 2015 by the Laser Interferometer Gravitational-wave Observatory (LIGO). This discovery implies that we have acquired a new “eye” to view our Universe, and it was the dawn of a new era, gravitational-wave cosmology. Gravitational waves are figuratively called “ripples in the fabric of spacetime,” which implies that spacetime itself is considered a kinematical object in our current understanding of gravity. Among the known four fundamental forces, the nature of gravity is not so well understood observationally as electromagnetism, weak force, or strong force. Gravitational waves and their observations can with no doubt unveil missing pieces in understanding the law of gravity. Placed in such an exciting period, I will review the current status of the theory of gravity taking into account the constraints obtained by gravitational-wave observations by LIGO.

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