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Detecting gravitational waves in the space: The Taiji project

LIGO's detection of gravitational wave events has entered a "new normal", and the era of gravitational wave astronomy has arrived. Constructing a gravitational wave detector with a longer arm length in space can detect low-frequency gravitational waves in the millihertz band. In this talk, I will introduce the Taiji project —- the space-borne gravitational wave detector by China. Its targets are mainly supermassive black holes and primordial gravitational waves in the early universe. The report will give an overview of the Taiji project, and then discuss in detail the scientific issues concerned by low-frequency gravitational wave observations. It mainly focuses on discussing the standard whistle of cosmology, the physical properties of black holes, and the testing of gravitational theories.

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