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Chiral Primordial Gravitational Waves from the Axion-Gauge Couplings

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An inflationary universe predicts vacuum fluctuations of space-time, called primordial gravitational waves, whose power spectra have tiny amplitudes and parity-symmetric features. Intriguingly, however, it is known that the axion-gauge coupling, motivated by string theory, could occur the particle production of gauge fields during inflation so that it provides the parity-violated gravitational waves testable in future gravitational wave experiments.
In this talk, we suggest a new mechanism of providing chiralities of gravitational waves sourced by the axion-gauge couplings from string theory. The gravitational waves predicted by our model could be observable by future space-based interferometers such as BBO and DECIGO experiments.

Primary author: Mr OBATA, Ippei (Department of Physics, Kyoto University)

Presenter: Mr OBATA, Ippei (Department of Physics, Kyoto University)

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