## Phenomenology 2025 Symposium



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## Second leptogenesis for large baryon-lepton asymmetry discrepancy

Tuesday 20 May 2025 16:45 (15 minutes)

We study a novel leptogenesis scenario with the temperature-dependent mass of heavy Majorana neutrino by the wave dark matter to explain the matter-antimatter asymmetry of the Universe. The leptogenesis happens twice in this scenario: the first leptogenesis occurs above the electroweak scale, while the second leptogenesis occurs below it. The sphaleron process converts the lepton asymmetry to the baryon asymmetry during the first leptogenesis, but not for the second leptogenesis due to the sphaleron decoupling at the electroweak scale. This mechanism potentially explains the significant discrepancy between baryon and lepton asymmetries, which is recently reported by EMPRESS. This talk is based on JHEP 03 (2024) 003 and PRD 111, 055026 (2025).

## Mini Symposia (Invited Talks Only)

## Plenary (Invited talks only)

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