

# Phenomenology 2025 Symposium



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## Is the SM CP Violation ever enough to produce the BAU?

*Tuesday 20 May 2025 17:00 (15 minutes)*

Is the Standard Model Charge-Parity (CP) violation ever enough to generate the observed baryon asymmetry? Yes! In this talk, I will discuss our most recent work: baryogenesis together with a dark matter production mechanism that can generate the entire observed baryon asymmetry of the universe using only the CP violation within the Standard Model. We introduced baryogenesis along with a dark sector dynamics involving a morphon field that shifts the mass of the particles mediating the decay responsible for baryogenesis. This enhances baryon production while evading present-day collider constraints. The CP violation comes entirely from Standard Model contributions to neutral meson systems. Meanwhile, the dark dynamics generate gravitational waves that may be searched for with current and upcoming Pulsar Timing Arrays.

### Mini Symposia (Invited Talks Only)

## Plenary (Invited talks only)

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**Session Classification:** New Ideas in Baryogenesis, Inflation

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