

PLANCK2025 - The 27th International Conference From the Planck Scale to the Electroweak Scale



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Cosmic Colliders: High Energy Physics with First-Order Phase Transitions

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Vacuum decay through runaway first order phase transitions presents a unique opportunity for particle physics and cosmology: collisions of vacuum bubbles can act as cosmic scale high energy colliders close to the Planck scale, providing access to high energy physics far beyond any temperature or energy scale ever reached in the history of our Universe. This talk will cover recent developments and challenges in the physics for understanding such frameworks, as well as their broad applications for particle physics and cosmology, from dark matter to leptogenesis to gravitational waves.

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