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High Energy Particles from Supercooled Phase Transitions

lundi 30 mai 2022 15:00 (20 minutes)

Supercooled phase transitions (PT) in the early universe give rise to out-of-equilibrium particles with energies much larger than the scale of the PT. Here we investigate their evolution, finding that it is affected by previously neglected number-changing interactions. We then determine the highest collision energies and rates achievable, thus describing a new mechanism able to produce particles much heavier than the scale of the phase transition. As an example, we show that dark ma er with masses up to roughly 10^{15} GeV can be produced by a supercooled PT with a much lower scale.

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Classification de Session: Parallel session 2