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Luca Santoni (APC): Dissipative Inflation via Scalar Production

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I will describe a new mechanism that gives rise to dissipation during cosmic inflation. In the simplest implementation, the mechanism requires the presence of a massive scalar field with a softly-broken global $U(1)$ symmetry, along with the inflaton field. Particle production in this scenario takes place on parametrically sub-horizon scales, as opposed to the case of dissipation into gauge fields. Consequently, the backreaction of the produced particles on the inflationary dynamics can be treated in a local manner, allowing us to compute their effects analytically. I will show the parametric dependence of the power spectrum and its deviation from the usual slow-roll expression. I will show that non-Gaussianities are always sizeable whenever perturbations are generated by the noise induced by dissipation.

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