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Hayato Motohashi: Constant roll and primordial black holes

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Constant-roll inflation is an interesting phenomenological class of inflationary models in which the assumption of inflaton slow-roll is replaced by more general constant-roll condition, and the second slow-roll parameter is not necessarily negligible. The constant-roll inflation with small positive value of the constant-roll parameter has been known to produce a slightly red-tilted curvature power spectrum compatible with the current observational constraints. In this work, we shed light on the constant-roll inflation with the constant-roll parameter with the range $-3/2 < \beta < 0$, which allows for a constant-roll attractor stage generating a blue-tilted curvature power spectrum without superhorizon growth, and investigate its application to production of primordial black holes. References: [1] H. Motohashi, A. A. Starobinsky, J. Yokoyama, JCAP 1509 (2015) 09, 018, [arXiv:1411.5021]. [2] H. Motohashi, S. Mukohyama, M. Oliosi, [arXiv:1910.13235].