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**Particle Cosmology
after Planck**

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Inflation with Fayet-Iliopoulos Terms

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We analyze the feasibility of inflation driven by field-dependent FI terms in the presence of an anomalous U(1) symmetry. We consider a heavy Kähler modulus whose axionic component cancels the gauge anomaly via the Green-Schwarz mechanism, i.e., it shifts under the anomalous U(1). The D-term of the modulus may play the role of a field-dependent FI term which can, in principle, drive inflation. However, due to the non-trivial gauge transformation of the modulus, moduli stabilization is problematic in the simplest setups. We analyze D-term inflation in connection with gauge invariant versions of KKLT and KL moduli stabilization and conclude that both are not viable whenever the FI term is not canceled. As possible alternative, we propose a model of chaotic inflation in a specific parameter regime of D-term inflation. In this case, inflation can be made consistent with the field-dependent FI term and modulus stabilization quite naturally.

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