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Backreaction of complex structure moduli in axion monodromy inflation

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We focus on the backreaction of complex structure moduli in axion monodromy inflation. In our setting, the shift symmetry comes from a partial large complex structure limit of the underlying type IIB orientifold or F-theory fourfold. The coefficient of the inflaton term in the superpotential has to be tuned small to avoid conflict with Kahler moduli stabilisation. To allow such a tuning, this coefficient necessarily depends on further complex structure moduli. At large values of the inflaton field, these moduli are then in danger of backreacting too strongly. To avoid this, further tunings are necessary. We discuss how to realise them in a F-theory fourfold setting and study the resulting scalar potential for the inflaton field.

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