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Modular invariant Inflation

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We propose new classes of inflation models based on the modular symmetry, where the modulus field τ serves as the inflaton. We establish a connection between modular inflation and modular stabilization, wherein the modulus field rolls towards a fixed point along the boundary of the fundamental domain. We find the modular symmetry strongly constrain the possible shape of the potential and identify some parameter space where the inflation predictions agree with cosmic microwave background observations. The tensor-to-scalar ratio is predicted to be smaller than 10^{-6} in our models, while the running of spectral index is of the the order of 10^{-4}.

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