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Testing Dynamical Inflection Point Inflation at Colliders

We introduce a minimal setup to achieve dynamical inflection point inflation, utilizing a minimal framework. Our approach examines collider constraints on inflationary parameters using the same field composition. Specifically, we incorporate a dark SU(2)D gauge sector featuring a dark scalar doublet as the inflaton, accompanied by particle content akin to the Standard Model but with degenerate masses. This configuration facilitates the realization of multiple inflection points in the inflaton potential. Notably, all vector-like particles in the exotic content possess identical Standard Model charges, enabling the inflaton's decay into the visible sector for reheating the universe. Our study establishes a vital link between collider constraints and their implications for inflationary parameters.

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