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Cosmic Acceleration and Turns in the Swampland

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We argue that field trajectories, which lead to cosmic acceleration and feature rapid turns near the boundary of the moduli space, are in the Swampland. We obtain this result by assuming the validity of the Swampland Distance Conjecture (SDC) in the presence of a positive (nearly-flat) scalar potential and by focusing on hyperbolic spaces, as prototype geometries of infinite distance limits of Calabi-Yau compactifications. We find that, in a quasi-de Sitter space with Hubble rate

H and acceleration parameter ϵ , the turning rate Ω is upper bounded such as $\Omega/H < O(\sqrt{\epsilon})$. Therefore, field trajectories consistent with the SDC can only have a negligible deviation from geodesics. This has direct implications for the realization and consistency of multifield scenarios in string theory. Moreover, it implies a tension between asymptotic accelerating expansion, consistent with observations, and the de Sitter conjecture.

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