Stability of the Calabi flow near an extremal metric

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Abstract. We prove that on a Kähler manifold admitting an extremal metric ω and for any Kähler potential φ_0 close to ω, the Calabi flow starting at φ_0 exists for all time and the modified Calabi flow starting at φ_0 will always be close to ω. Furthermore, when the initial data is invariant under the maximal compact subgroup of the identity component of the reduced automorphism group, the modified Calabi flow converges to an extremal metric near ω exponentially fast.