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Warm inflation with sphaleron heating

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Coupling an axion to pure Yang-Mills gauge bosons is a compelling setup for warm inflationary dynamics. The axion, a pseudo-Goldstone boson acting as the warm inflaton is protected from thermal corrections to its mass due by its approximate shift symmetry. Simultaneously, real time sphaleron processes due to the non-trivial topology of the gauge theory fuel particle production, leading to the phenomenon of sphaleron heating. The resulting thermal friction coefficient can be deduced from the sphaleron rate. I will discuss the mechanism of sphaleron heating in the context of warm inflation. In particular, I will examine how the presence of fermions charged under the SU(N) impact the sphaleron dynamics, and outline a path towards a viable warm inflation scenario with QCD sphaleron heating.

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