



INVITATION

as part of the Particle Physics Seminar

to the talk by

Zhiquan SUN
(MIT)

on

***“The quality/cosmology tension for a post-inflationary
QCD axion“***

Abstract:

It is difficult to construct a post-inflation QCD axion model that solves the axion quality problem (and hence the Strong CP problem) without introducing a cosmological disaster. Firstly, generic solutions to the quality problem complicates the solution to the cosmological domain wall problem, leading to a cosmology where domain walls dominate the energy density of the universe. Secondly, post-inflation axion models also face a potential problem from fractionally charged relics; solving this problem often leads to low-energy Landau poles for Standard Model gauge couplings, reintroducing the quality problem. We study several examples, finding that models that solve the quality problem face cosmological problems, and vice versa. Successful examples may have a nonstandard cosmological history, undermining the widespread expectation that the post-inflation QCD axion scenario predicts a unique mass for axion dark matter.

Time: Tuesday, 14 January 2025, 4:15 p.m.

Location: Erwin-Schrödinger Lecture Hall, 1090 Vienna, Boltzmannngasse 5, 5th floor

Join Zoom Meeting - Meeting ID: 933 4269 3866 Passcode: 185096
<https://univiennea.zoom.us/j/93342693866?pwd=aUpTR0VJNUhJY2Q0ajdaKzI1YWVhQ09>

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