

Saxion/Higgs Inflation and Axion Dark Matter

Friday 25 May 2018 14:00 (30 minutes)

The saxion - the modulus of the Peccei-Quinn scalar - or a mixture of it with the modulus of the Higgs - represents a viable inflaton candidate, if one takes into account the possible non-minimal coupling of the PQ scalar to gravity. Remarkably, reheating in saxion/Higgs inflation inevitably restores the PQ symmetry and results therefore in a lower bound on the axion mass around 30 micro-eV. Otherwise, the amount of axion dark matter exceeds the observed amount of cold dark matter. This cosmological scenario can be decisively tested by the next generation of CMB and axion experiments, such as CMB-S4, MADMAX, and IAXO.

Presenter: RINGWALD, Andreas (DESY)

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