

Ultra-light axions and the CMB

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Ultra-light axions arise generically in string compactifications and furnish an attractive possibility for dark matter and dark energy in the universe. I'll review the cosmological implications of ultra-light axions, covering phenomenology ranging from CMB power spectra to galaxy weak-lensing observations. After summarizing current constraints, I'll discuss the exciting axionic sensitivity of future surveys and experiments like the Large Synoptic Survey Telescope and CMB-SIV. I'll close by discussing a variety of open theoretical problems, ranging from an accurate treatment of the axion sound speed to a proper treatment of nonlinear collapse and structure formation in ultra-light axion scenarios.

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