Axion RG flows and a bound on axion excursions

Tuesday, 25 June 2019 15:30 (15 minutes)

I will discuss axionic holographic RG flow solutions in the context of general Einstein-Axion-Dilaton theories, where a non-trivial axion profile is dual to the (non-perturbative) running of the theta-term for the corresponding instanton density operator. I will show that a non-trivial axion solution is incompatible with a non-trivial (holographic) IR conformal fixed point. Imposing a suitable axion regularity condition allows to select the IR geometry in a unique way. Interestingly, the regularity condition always implies a finite allowed range for the axion source parameter in the UV. This translates into the existence of a finite (but large) number of saddle-points in the large N limit. This ties in well with axion-swampland conjectures.

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