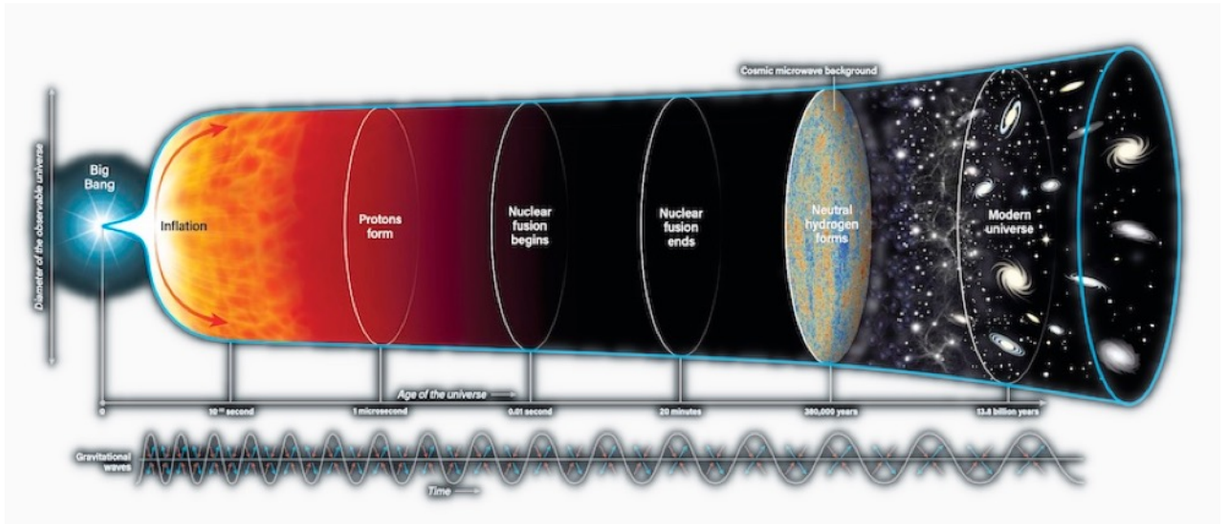
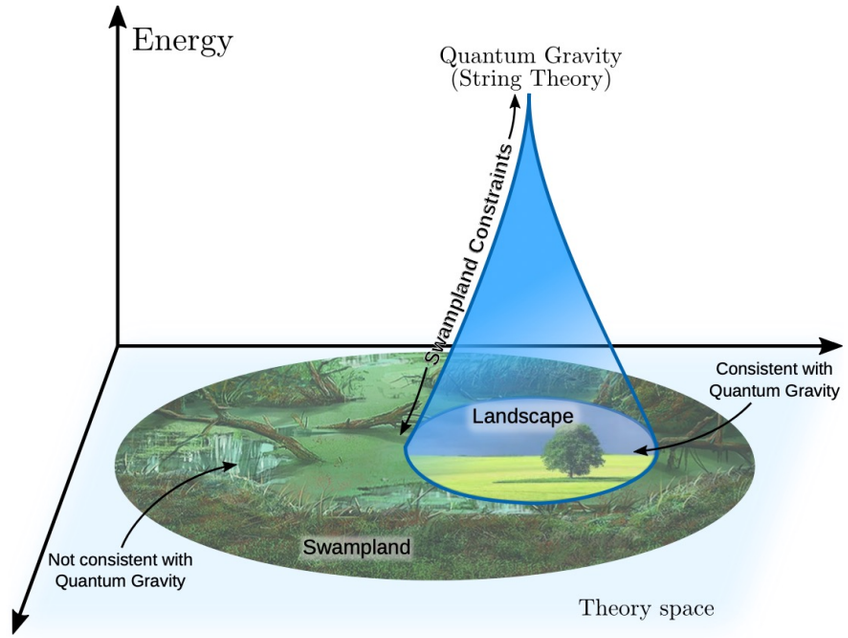
Questions

cosmologists ⟷ string theorists





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Cosmo-String Day, APC

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1. • What are the concrete implications of string theory for cosmology?
2. • What cosmological observations would you like to see realised?
3. • What are the common features of string theory that are relevant for cosmology?
4. • Could string-theorists please decide if the CC is zero? Landscape = 10^500 dS vacua (??). Vafa = none with a scalar which evolves.
5. • Is the swampland rubbish or should it be taken seriously? It seems to have taken all the space in discussions (it's a pity some add…)
6. • Which is your favourite inflation model? And why?

   • Can string theory produce a realistic inflationary potential?

7. • Does string theory rule out inflation? Or does todays inflation (dark energy) rule out string theory?
8. • Can string theory tell us anything about the initial conditions for inflation ?
9. • Can string theory tell us anything about the transplanckian problem? What should be do under the Planck length? What vacuum stat

   • How many scalar fields do you expect?

10. • If you take the low energy limit of some QG theory, do you always get a classical GR background on which perturbations are quanti
11. • Can string theory help us produce bounces?
12. • Can string theory give us information on the big-bang singularity?
13. • What about holography, loop QG and their predictions for cosmology? Differences with string theory predictions? Should one worr
14. • Should one believe there are cosmic strings in string theory?

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1. Should we trust each of the different tensions, H_0, σ_8, etc.?
2. Best expectations for future observations for say r, non-gaussianities, etc.
3. Attitude about ultra-light scalars and screening mechanisms
4. Do you prefer de Sitter vacuum (cosmological constant) or rolling field?
5. Can unstable de Sitter be fine for today's dark energy?
6. What are the bounds on ε_V for quintessence? Is this altered in a multifield scenario?
7. Is it ok to have spatial curvature (Ω_k, k= -1 or +1)? Will we ever know?
8. What is the scalar field in early dark energy models? Any constraint on it?
9. How interesting is for you if after inflation there are other epochs (kination, moduli domination, etc.)
10. How much importance you give to search for gravitational waves of high frequency (e.g. Giga Hertz).
11. How seriously you take alternatives to inflation inspired by string theory?
12. What is the most fruitful direction to concentrate during the next 5,10,100 years?