What is a way to introduce a huge flux of energy in the initial onset of inflation? i.e. Use of modified HUP and Torsion and a possible link to quantum number n meant to unify Black holes, and a quantum universe

Andrew Walcott Beckwith

Physics Department, Chongqing University, College of Physics, Huxi Campus, PRC of China

First, We consider if a generalized HUP set greater than or equal to Planck's constant divided by the square of a scale factor as well as an inflation field, yield the result that Delta E times Delta t is embedded in a 5 dimensional field which is within a deterministic structure. Our proof ends with Delta t as of Planck time yielding an enormous potential energy**, Second, we tie this energy to black hole physics and the early universe. i.e** ,Our idea for black hole physics being used for GW generation , is using Torsion to form a cosmological constant. Planck sized black holes allow for a spin density term linked to Torsion.. \

I. Introduction

As indicated there are several states in this presentation First is the idea of using the HUP from a deterministic embedding in 5 dim, as given in Eq. 1. And Eq. 2, where we have then

$$\begin{aligned}
&\left|dp_{\alpha}dx^{\alpha}\right| \approx \frac{L}{l}\cdot\frac{h}{c}\cdot\left[\frac{dl}{l}\right]^{2} \\
&\xrightarrow[\alpha=0]{} \left|dp_{0}dx^{0}\right| \simeq \left|\Delta E \Delta t\right| \approx \left(h/a_{init}{}^{2}\phi(t)\right) \\
&\Rightarrow \frac{L}{l}\cdot\frac{h}{c}\cdot\left[\frac{dl}{l}\right]^{2} \approx \left(h/a_{init}{}^{2}\phi(t_{init})\right)
\end{aligned} \tag{1}$$

$$\sqrt{\Lambda} = \frac{k_B E}{\hbar c S_{entropy}} \tag{2}$$

$$S_{entropy} = k_B N_{particles}$$

The upshot is that we will be changing the cosmological constant from

$$\left(\frac{8\pi G}{3}\right)\cdot\left[-\frac{2\pi G\sigma^{2}}{3c^{4}}\right]+\frac{\Lambda c^{2}}{3}=0 \tag{3}$$

What we are arguing is that instead, one is seeing, instead

$$\left(\frac{8\pi G}{3}\right)\cdot\left[-\frac{2\pi G\sigma^{2}}{3c^{4}}\right]+\frac{\Lambda_{Pl}c^{2}}{3}\approx 10^{-122}\times\left(\frac{\Lambda_{Pl}c^{2}}{3}\right) \tag{4}$$

Our timing as to Eq. (4) is to unleash a Planck time interval t about 10^-43 seconds. As to Eq. (3) versus Eq. (4) the creation of the torsion term is due to a presumed particle spin density of

$$n_{Pl} \approx 10^{98}\,cm^{-3} \tag{5}$$

II. Conclusion

Space constraints do not allow us to explain more than this other than to bring up that the Torsion argument is to buttress the following for energy density which we give as

$$\rho_{\Lambda}c^2 = \int_0^{E_{Plank}/c} \frac{4\pi p^2 dp}{(2\pi\hbar)^3}\cdot\left(\frac{1}{2}\cdot\sqrt{p^2c^2+m^2c^4}\right) \approx \frac{\left(3\times10^{19}GeV\right)^4}{(2\pi\hbar)^3} \xrightarrow[E_{Plank}/c\to10\wedge-30]{} \frac{\left(2.5\times10^{-11}GeV\right)^4}{(2\pi\hbar)^3} \tag{6}$$

This means shifting the energy level of the Eq. (6) downward by 10^-30, i.e. the top value energy becomes a down scale of Planck energy times 10^-30. We argue that the topping off of this integral is dependent upon Eq. (5) with respect to black holes, and that the quantum number comes from [1][2]

$$\begin{aligned} &M_{BH} \approx \sqrt{N_{gravitons}}M_P \\ &\Rightarrow (1/M_{BH})^{1/2} \approx \frac{n_{quantum}}{2} \approx \frac{1}{\left(N_{gravitons}\right)^{1/4}} \\ &\Rightarrow n_{quantum} \approx \frac{2}{\left(N_{gravitons}\right)^{1/4}} \end{aligned} \tag{7}$$

Finally this also leads to a huge energy flux we can write for Potential energy initially [1][2]

$$V_0 = \left(\sqrt{\frac{\nu(3\nu-1)}{8\pi}} + \sqrt{2\cdot(3\nu-1)}\cdot\frac{{a_{init}}^2\cdot(l_2-l_1)^2}{l^3(c)\cdot(3\Lambda)^{1/2}}\right)^2 \approx \Delta E \tag{8}$$

This uses a scale factor we write as $a(t) \approx a_{init}t^{\nu}$ and also a linkage to a 5 dimensional line element , Λ and time which we write as [1][2] as well as Planck time Eq. (10) which is linked to Eq.(1) as discussed in [2] This leads to Planck time . Also we use a 5 dimensional wave number as $K_l = 1/l$

$$dS_{5-d}^2 = \frac{L^2}{l^2}dS_{4-d}^2 - \frac{L^4}{l^4}dl^2 \tag{9}$$

$$t = t_{planck} \to 1 = \sqrt{\frac{\nu(3\nu-1)}{8\pi V_0}} + \sqrt{\frac{2\cdot(3\nu-1)}{V_0}}\cdot\frac{{a_{init}}^2\cdot(l_2-l_1)^2}{l^3(c)\cdot(3\Lambda)^{1/2}} \tag{10}$$

References

[1] Andrew Beckwith, " Pathways toward Quantum Cosmology", Published by Scientific Research Publishing, Inc. ISBN: 979-8-89507-673-6 , PRC, 2026

[2] Beckwith, A.W. (2026) What Is a Way to Introduce a Huge Flux of Energy in the Initial Onset of Inflation? i.e. Use of Modified Hup and Torsion and a Possible Link to Quantum Number N Meant to Unify Black Holes, and a Quantum Universe. Journal of High Energy Physics, Gravitation and Cosmology, 12, 498-584. https://doi.org/10.4236/jhepgc.2026.121028