

Some of the Commentaries on the String Theory Development Group

Andrew Nassif: Could the Big Bang Theory go against the scientific law that matter can't create its own self or be destroyed?

Mark Simpson: scientific "law" is a term I seldom use. A principle would be such that ZPE and emergent wave theory show, everything can be viewed from constructs of wave tables, free space models and photon constructs, virtual and realized. The holographic nature of String Theory and the physical world are unified in this. What defines matter is the complexity of dimensions (see knot theory) to obtain objects based on waves. Matter is neither created nor destroyed. It is decompiled or recompiled from different topological identities.

Aditya Kumar: Cloud of atoms goes beyond absolute zero

"Nothing is colder than absolute zero, so it seems nonsensical to talk about negative temperature – but now there is a substance that must have just that. The revelation could shake up our ideas about temperature and help us understand strange entities such as dark energy, as well as the interactions of subatomic particles."

Bob Turner: That post three up the thread, where I say that G might need to be changed, gives me too high a value of G. Out by a factor of ten! for the moment I'll leave G alone; I want to look at a Dirac universe where \hbar increases over time, rather than one in which both \hbar and G vary.

So I thought I'd try and see what the mass of the universe is going to be, from the mass of the visible universe.

Mach's limit, $GM / r = c^2$ (the basis of the idea that inertial mass and gravitational mass are equal)

$r_{schw} = 2.9193265e 25$ metres

$r_{ea} = 1.4020359e 26$ metres (where we are)

$G = 6.67384e-11$

So Mach's limit $xGM / r = c^2$ and solve for x

Mach's limit $\pi^2 GM / 1.027527122 * r_{ea} = c^2$

Well, for reasons to do with \hbar I'd rather that 1.027527122 were 1.026923308 but the ratio of 1.000587 will have to have me climbing the walls for now.

Neil Bates: Temperature is not really *defined* by the relative energy distributions of atoms, but by average energy - but in a metaphorical sense they can say it is sort of a "negative temperature."

Charles A Lester: <http://www.livescience.com/26563-shrinking-proton-smaller-measurement.html> I guess I should look into this deeper. In my lattice model I give a slightly smaller Max size for the Proton, 1/3.14 rather than the classical 1/3 of the electron, but that was the Max as the size fluctuates slightly, so measurements over time should yield an even slightly smaller size, but was unable to determine the exact value for the Min size of the fluctuation. Does the current group model also predict a size for the proton? or that its size can vary slightly?

Michael Balmer: Their calculations were based on total atomic weight, but of the nucleus

Jonathan Vos Post: Surprisingly, experiments at RHIC revealed that quark-gluon plasmas are nearly perfect liquids, "the best liquid ever discovered," Müller told LiveScience. This means they flow with virtually no viscosity (or resistance), data the LHC later confirmed.

Scientists had expected quark-gluon plasmas to behave more like a gas, whose constituents interact only weakly with each other. The fact they behave more like a liquid instead suggests their components interact more strongly with each other.

Unexpectedly, such liquid behavior is predicted in scenarios involving superstring theories.

<http://www.livescience.com/21715-big-bang-quark-gluon-plasma.html>

Aditya Kumar: Star Trek's 'tractor' beam created in miniature by researchers: A team of scientists from Scotland and the Czech Republic has created a real-life "tractor" beam, as featured in the Star Trek movies, which for the first time allows a beam of light to attract ..

<http://phys.org/news/2013-01-star-trek-tractor-miniature.html>

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