

Tough Questions for Physics and Philosophy: Zor Sorular

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Craig Callender ve Nick Huggett (der.), (2001), Physics Meets Philosophy
at the Planck Scale, Cambridge University Press

1. Is time continuous or discrete at Planck scale? What about in the non-Planck scale?
2. Is time the universal measurement unit everywhere and any time? For example, during the Big Bang? What about the measurement under General Relativity theory?
3. Is the large mass bodies system only system (where Einstein's General Relativity Theory applies) spacetime invariant?
4. What is Planck time? Will we be able to make any experiment on the Planck time scale?
5. Why is the entropy of a blackhole proportional to its surface? Why is $S = \frac{1}{4\pi}A$ (William Unruh, Bekenstein)
6. Is Category Theory of mathematics important to the potential Unified Theory? Why?
7. How do we reconcile the distinct logics of General Relativity and Quantum Field theory?
8. What is the importance of Higgs particle?
9. Are there multiuniverses? If there are how should we think about causality in nature in social world?

10. Should Unified Theory reproduce the results of all physical laws known today as special cases of its premises?
11. Why do we have so many String Theories? Why are there so many symmetry groups?
12. Is M-Theory the candidate for a Unified Theory? Will there be experimental evidence confirming M-theory?
13. Does M-theory change the way we think about causality?
14. Should mathematics evolve in order to achieve the Unified Theory? Or can we reach tot the Unified Theory with the given state of Mathematics?
15. What will the processes and the outcome in achieving the Unified Theory mean to the layman? Should a layman make an attempt to understand what is going on? Or is it fruitless?
16. What should we make of Steven Wolfram and Gregory Chaitin theories of computational complexity?