

## Fundamental physics asks philosophers new questions

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Modern fundamental physics poses new questions to philosophy, which not only do not have answers yet, but, rather, are not noticed by philosophy of science. This presentation formulates a number of such questions in order to present them to the attention, first of all, of professional philosophers. A rough list of the main themes is as follows: 1) Irreducible uncertainty of cosmological data (cosmic variance) and the meaning of theoretical cosmology; 2) Epistemological status of the concept of Multiverse and other universes in cosmology; 3) Ensemble meaning of measurement in quantum theory and the operational status of quantum macrostates; 4) Quantum gravity and the wave function of the universe as a special case of quantum macrostates; 5) The meaning of the concept of physical reality in the Max Tegmark principle of mathematical democracy; 6) Application of the item 5 to the physical meaning of string theory.

Information on the subject:

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Related papers

A.D. Panov. On Methodological Problems in Cosmology and Quantum Gravity. Russian Studies in Philosophy, V.49, No.3, 2011, P.72-92.

<http://dec1.sinp.msu.ru/~panov/MethBroblCosm-2011-RusPhil.pdf>

A. Panov. The Structure of Reality, or Where to Find the Final Theory? Philosophy and Cosmology. Volume 19, 2017, P. 74-94

<http://dec1.sinp.msu.ru/~panov/MathAndReal-2017.pdf>

А.Д. Панов. Природа математики, космология и структура реальности: объективность мира математических форм. В кн.: Космология, физика, культура. Под ред. В.В. Казютиского. М.: ИФ РАН, 2011. С. 191-219.

<http://dec1.sinp.msu.ru/~panov/Math-2011.pdf>

А.Д. Панов. Природа математики, космология и структура реальности: физические основания математики. В кн.: Мета вселенная, пространство, время. Под ред. В.В. Казютиского (отв. ред.), Е.А. Мамчур, А.Д. Панова, В.Д. Эрекаева. М.: ИФ РАН, 2013. С. 74-103.

<http://dec1.sinp.msu.ru/~panov/Math-2013-02.pdf>

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