The Origin of Unification of Mathematics and Physics

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Abstract: In the limit we obtain grainy mathematical spacetime with grains composed of infinite sets of finite velocities of sizeless points placed in nothingness. On the other hand, we do not lose information about inertial-only mass if in nothingness are moving the physical plenums i.e. some grains as well. It causes that mathematical and physical descriptions are compatible. There are not in existence real numbers composed of infinite number of digits (there are gaps between the centres of the tangent mathematical grains or physical plenums). It leads to the calculus of finite differences. Similarity in behaviour of grains and plenums (the kinematics of fluids) causes that Platonism is partially correct. Such initial conditions lead sometimes to life and mind.

Applying an extension of General Relativity, we proved that in the limit we obtain grainy mathematical spacetime with grains composed of infinite sets of finite velocities of sizeless points placed in nothingness [1]. On the other hand, we do not lose information about inertial-only mass if in nothingness are moving the physical plenums i.e. some grains as well [1]. Due to the kinematics of fluids, the mathematical grains mimic the behaviour of the physical plenums.

Unification of mathematics and physics follows from the fact that the mathematical grains mimic the behaviour of the eternal physical plenums. We do not need the physical plenums to describe Nature if the mathematical grains are non-transparent for other mathematical grains – but we do not know some mechanisms such process could be possible.

Similarity in behaviour of the mathematical grains and physical plenums causes that mathematical and physical descriptions are compatible. Just there are not in existence real numbers composed of infinite number of digits, just sizes of numbers are quantized. There are gaps between the centres of the tangent mathematical grains or physical plenums. It leads to the calculus of finite differences which is very important in finite difference methods for the numerical solution.

We can see that mathematics and physics emerge as one and it is the unification of mathematics and physics. Of course, mathematics is invented to describe interactions of the physical plenums. But both objects, i.e. the mathematical grains and physical plenums, behave in similar way so Platonism is partially correct.

Such initial conditions lead sometimes to life and mind.

References
[1] Sylwester Kornowski (2016). "Is the Physical World the Math/Platonic-World Only?"
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