Considerations on Dimensions

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ABSTRACT: The existence of the n-dimensional and 2^n-dimensional spaces has been discussed. One has called the particular attention to the D=6 spaces. One has touched the meaning of the mixing the loops. In the end the existence of the totally complex coordinates has been proved.

There are the space-times: D=6 (compactification D=10 equal 4 dimensions), the space-time D=11 (compactification D=11 equal 4 dimensions), D=8 (compactification D=11 equal 3 dimensions or enlargement D=4) [1].
Every small natural number is a dimension of certain space-time.
There are massless particles in the supermembrane. In the D=11 supermembrane the are massless states containing graviton [2].
There are 16-dimensional SO(9) spinors – eight two-component spinors. The Clifford algebra can be represented on 128_B+128_F dimensional spinor of SO(16) [2], so there are 2^6 dimensions.
In D=10 space-time the heterotic string is dual to the heterotic five-brane.
In D=6 it would be dual to another heterotic string. So the D=6 space-time exists too [3].
The D=6 space-time is treated by authors as an unimportant result (the compactification of D=10 space-time), but I am the opinion that there can be a further enlargement of the D=5 Kaluza-Klein space with the next dimension permitting to enlarge this conception with the next interactions.
The process of the string–five-brane duality mixes up the string loops with the five-brane loops [3].
It suggests that the loops are fundamental objects and they are mixed in the process of duality [3].
D=4 heterotic string theory (0,1,2,3) is the four-dimensional space-time,
$z = x_2 + ix_3 = r^{i\theta}$ (4,5,6,7,8,9) are the compactificated directions [4].

It confirms that one should take the superposition of the real and purely complex space-time coordinate, so as one should take under considerations all solutions of the equation:

$$m = \frac{m_0}{\sqrt{1 - \frac{v^2}{c^2}}}$$

similarly as Dirac didn't reject the negative root from "Pythagorean theorem".

References:

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[4] M. J. Duff, S. Feraro, Ramzi R. Khuri, J. Rahmfeld, Physics Letters B 356 (1995) 479-496, 24. August 1995