

Space particle duality

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Particle STM duality

Let us start with observation that space and particle have the same principal features. Thus, we may expect space to have properties, say, of photon or electron etc. $U(1)$ symmetry that of photon is attributed to space [or space-time] with addition of what we call time-orthogonal circle. Local gauge shows up $U(1)$ as electromagnetic field, but we take locality as space itself and say that $U(1)$ is space [or space generator] itself without its complementary part in time orthogonality. $SU(2)$ with one part as $SO(3)$ constitute space with complementary other part remaining outside accounts for spine what we attribute to principal properties of electron or Custodial Symmetry in SM. $SU(3)$ we consider as responsible for quark flavor symmetry and try to squeeze in space-time too. Thus, standard model, its base symmetry $SU(3)\times SU(2)\times U(1)$, in maybe some artificial way may be squeezed in space-time and accounted as space-time constructor. Next, we speak in place of space-time about space-time-matter (STM) and say that microstructure of SM with $SU(3)\times SU(2)\times U(1)$ symmetry has macrostructure in correspondence as STM continuum, i.e., particles in micro world have space-time in STM appearance as dual macro world.

QM micro and macro duality

Quantum mechanics (both in Schroedinger non-relativistic and Dirac relativistic outline) guides micro world particle physics in certain known aspects. We may now attribute macro world picture of QM taking into account particle STM duality saying that wave function describe some complementary states of parameters that constitute STM entities in macro world.

The consequence for homo sapiens is that he thinks as if being with his mind in grand superposition with nature. Either quantity distinguishing observer one-one matches into grand superposition of nature or it is as if part of it, it is not decidable by us.

Literature

Bohm, D. (2002). *Wholeness and the Implicate Order*. Routledge.

D'Aquili, E., & Newberg, A. B. (1999). *The Mystical Mind: Probing the Biology of Religious Experience*. Augsburg Fortress Publishers.

Firk, F. W. (2000). *Introduction to Groups, Invariants and Particles*.

Hall, B. C. (2003). *Lie Groups, Lie Algebras, and Representations. An Elementary Introduction*. New York: Springer.

Nakahara, M. (2003). *Geometry, Topology and Physics. Second Edition*. Taylor & Francis.

Zeps, D. (2005). *Cognitum hypothesis and cognitum consciousness. How time and space concetion of idealistic philosophy is supported by contemporary physics*.

Zeps, D. (2008). *Hologram and Distinction. The Physics of Time*.

Zeps, D. (2007). *On to what effect LHC experiments should arrive*.