

Space - Time - Matter: Finite Projective Geometry as a Quantum World with Elementary Particles

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Based on geometric differences of spaces with only a finite number of points to the mathematically more complicated continuous manifold, it can be argued that a 4-dimensional space-time is the only possible way to formulate a model of the world. Matter appears as a geometric distortion and is therefore not to be separated from space-time but a part of it. All physical properties of the elementary particles, their interacting forces, spins and charges, as well as their unusual quantum phenomena, consequently follow from the geometric structure of a world with only a finite number of points. This unity of matter, space and time was already sought 1918 by Hermann Weyl in a gauge theory as an extension of Einstein's general theory of relativity, but not found because of its inherent continuum assumption.