Eytan Suchard, J Astrophys Aerospace Technol 2018, Volume 6
DOI: 10.4172/2329-6542-C7-035

4th International Conference on
ASTROPHYSICS AND PARTICLE PHYSICS
December 03-05, 2018 | Chicago, USA

Geometric chronons can be viewed as the building blocks of a quantum theory instead of particles

Eytan Suchard
Metivity, USA

In De Sitter / Anti De Sitter space-time and in other geometries, reference sub-manifolds from which proper time is measured along integral curves are described as events. We introduce here a foliation with the help of a scalar field. The scalar field need not be unique but from the gradient of the scalar field, an intrinsic Reeb vector of the foliations perpendicular to the gradient vector is calculated. The Reeb vector describes the acceleration of a physical particle that moves along the integral curves that are formed by the gradient of the scalar field. The Reeb vector appears as a component of an anti-symmetric matrix which is a part of a rank-2, 2-form. The 2-form is extended into a non-degenerate 4-form and into a rank-4 matrix of a 2-form, which when multiplied by a velocity of a particle, becomes the acceleration of the particle. The matrix has one U(1) degree of freedom and an additional SU(2) degrees of freedom in two vectors that span the plane perpendicular to the gradient of the scalar field and to the Reeb vector. In total, there are U(1) x SU(2) degrees of freedom. SU(3) degrees of freedom arise from three-dimensional foliations but require an additional symmetry to exist in order to have a valid covariant meaning. The model aims at causal sets, that when not aligned along geodesic curves, force material clocks of different types, not to move geodetically, thus meaning forces and matter. This paper mostly deals with U(1) type clocks but also discusses SU(2) and SU(3) and in a more detailed way in appendix C.

Biography

Eytan Suchard, Metivity. Ex-student of Professor Nathan Rosen, have been doing research for 15 years on a new Quantum interpretation of the matter.

eytansuchard@gmail.com

Notes: