

Symmetric Spaces of Matter and Real Fermion Manifolds

Bernd Schmeikal

Abstract. The geometric algebra $Cl_{3,1}$ generated by the Minkowski spacetime with signature $\{+++-\}$ possesses a natural ternary partition which provides the Lie algebra of the standard model symmetry in an improved form. The symmetric spaces of matter embed a differentiable manifold of primitive idempotents which represents a real valued fermion space as an 8-dimensional real unit sphere in a 10-dimensional subspace with positive definite signature. The algebraic properties of the present theory of spacetime-matter are developed, beginning with the definiteness of the stabilizer algebra of neutrinos, investigating the orthogonality between fermions and neutrinos and ending with the curvature of the symmetric spaces of the strong force. The model brings together the quantum theory and relativity, as we conceive it at present, such that the standard model turns out to be a definite property of the spacetime algebra.

Bernd Schmeikal
Am Platzl 1
A-4451 Garsten

Received: November 7, 2005
Accepted: January 10, 2006