RELATIVISTIC-GEOMETRIC ENTANGLEMENT: SYMMETRY GROUPS OF SYSTEMS OF ENTANGLED PARTICLES

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Abstract. It is known that entangled particles involve Lorentz symmetry violation. Hence, we pay attention to Lorentz transformations of signature $(m, n)$ for all positive integers $m$ and $n$. We show that these form the symmetry groups by which systems of $m$ entangled $n$-dimensional particles can be understood, just as the common Lorentz group of signature $(1, 3)$ forms the symmetry group by which Einstein’s special theory of relativity is understood. A novel, unified parametric realization of the Lorentz transformations of any signature $(m, n)$ shakes down the underlying matrix algebra into elegant and transparent results.

MSC: 81M05, 81P40, 83A05, 51M10

Keywords: Galilei transformations of signature $(m, n)$, Lorentz transformations of signature $(m, n)$, pseudo-Euclidean spaces, quantum entanglement, relativistic-geometric entanglement, special relativity

CONTENTS

1. Introduction ................................................................. 267
2. Pseudo-Euclidean Spaces and Pseudo-Rotations .................................. 269
3. Matrix Balls of Radius $c$ ..................................................... 271
4. V-Parametric Realization of Lorentz Transformations of Signature $(m, n)$ .... 273
5. Additive V-Decomposition of the Lorentz Bi-boost .............................. 274
6. Application of the Galilei Bi-boost of Signature $(1, 3)$ .......................... 276
7. Application of the Galilei Bi-boost of any Signature ............................ 277
8. Application of the Lorentz Bi-boost of any Signature ........................... 279
9. Geometric Entanglement in Bi-hyperbolic Geometry .............................. 281
References ........................................................................ 283

266