

1154-81-1287

**David Carfi\***, Via Canova 32, 98121 Messina, Messina, Italy, and **Alessia Donato**. *Schwartz diagonalizable operators, relativistic Quantum Mechanics and Dirac equation in distribution spaces.*

In our presentation, we begin the journey needed to construct a reasonable foundation of Relativistic Quantum Mechanics in Laurent Schwartz distribution spaces. Schwartz Linear Algebra approach, on one hand, allows to adopt rigorously and efficiently the concept of continuous eigenbasis of observables (for the entire state space of a Quantum system), going towards a “covariant” formulation of Quantum Mechanics with respect to the change of Schwartz bases, on the other hand, we can propose a pretty manageable definition of “principal square root” of strictly positive and strictly negative Schwartz diagonalizable operators, shading new light upon the classic relativistic Quantum equations: Dirac equation, Klein-Gordon equation, Weil equation and Proca equation. (Received September 14, 2019)