1114-81-223   **David Carfi*** (`davidcarfi@gmail.com`), 98121 Messina, Italy. *Schwartz Linear Algebra: foundations and some applications.*

We propose here a pretty orthodox development of Laurent Schwartz Distribution Theory, conducted by following the way of Weak Duality on topological vector spaces, aiming at the construction of a feasible and manageable framework for Quantum Mechanics. It turns out that distribution spaces reveal themselves an environment more capable to work in Quantum Mechanics than previously thought. The goal of the research introduced in this book consists in showing that the most natural state spaces of a quantum system, in the infinite dimensional case, are just the distribution spaces. Moreover, we show new, but natural and straightforward, orthodox mathematical structures that reproduce very well some required physical structures and operational procedures of Quantum Mechanics, systematizing the algorithms and notations of Dirac Calculus in such a way that it becomes a more versatile and more powerful tool without struggling with complicated and substantially contradictory arguments. (Received August 28, 2015)