

Khrennikov, A. Yu.

p -adic valued distributions in mathematical physics. (English) Zbl 0833.46061

Mathematics and its Applications (Dordrecht). 309. Dordrecht: Kluwer Academic Publishers. xvi, 264 p. (1994).

This book is devoted to the study of non-Archimedean, and especially p -adic mathematical physics. Physical models like the p -adic universe, energies and momentums, are considered. Two types of measurement algorithms are shown to exist, one generating real values, one generating p -adic values. Subjects that are treated include non-Archimedean valued distributions, Gaussian and Feynman non-Archimedean distributions with applications to quantum field theory, differential and pseudo-differential equations, infinite-dimensional non-Archimedean analysis, and p -adic valued theory of probability and statistics. This book can be interesting for researchers and students whose work involves mathematical physics, functional analysis, number theory, probability theory, stochastics, statistical physics or thermodynamics.

Reviewer: [A.Torgašev \(Beograd\)](#)

MSC:

- [46S10](#) Functional analysis over fields other than \mathbb{R} or \mathbb{C} or the quaternions; non-Archimedean functional analysis
- [46N50](#) Applications of functional analysis in quantum physics
- [46N55](#) Applications of functional analysis in statistical physics
- [46N20](#) Applications of functional analysis to differential and integral equations

Cited in **2** Reviews
Cited in **107** Documents

Keywords:

p -adic mathematical physics; p -adic universe; energies and momentums; non-Archimedean valued distributions; Gaussian and Feynman non-Archimedean distributions; quantum field theory; differential and pseudo-differential equations; infinite-dimensional non-Archimedean analysis; p -adic valued theory of probability and statistics