**Khrennikov, A. Yu.**

**Axiomatics of $p$-adic probability theory.** (English. Russian original) Zbl 0789.60001

Russ. Acad. Sci., Dokl., Math. 46, No. 2, 373-377 (1993); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk 326, No. 5, 796-800 (1992).

A theory of probability with $p$-adic valued probabilities is generated to present a statistical interpretation to wave functions of a $p$-adic valued quantum mechanics. At first a frequency definition of probability is proposed in the similar way to the ordinary von Mises definition. A probability is defined as a limit of relative frequencies with respect to a $p$-adic topology on the field of rational numbers (relative frequencies are always rational). The next step is to create a measure- theoretical axiomatics in the same way as A. N. Kolmogorov has created the axiomatics of the ordinary theory of probability. We can tell about non-Kolmogorov theories of probability.

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**MSC:**

60A05 Axioms; other general questions in probability
11S80 Other analytic theory (analogues of beta and gamma functions, $p$-adic integration, etc.)



**Keywords:**

quantization; $p$-adic valued probabilities; statistical interpretation to wave functions