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**Stability of fractional neutral stochastic partial integro-differential equations.** (English)

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Summary: In this paper, we are concerned with a class of fractional partial neutral stochastic integro-differential equations in Hilbert spaces. We assume that the linear part of this equation generates an  $\alpha$ -resolvent operator and transform it into an integral equation. By the stochastic analysis and fractional calculus technique, and combining some integral inequalities, we obtain some sufficient conditions ensuring the exponential  $p$ -stability of the mild solution of the considered equations are obtained. Subsequently, by the weak convergence approach, we have a try to deal with the stability conditions in distribution of the segment process of mild solutions to the stochastic systems under investigation. Last, an example is presented to illustrate our theory in the work.

**MSC:**

60H10 Stochastic ordinary differential equations (aspects of stochastic analysis)

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60H20 Stochastic integral equations

**Keywords:**

fractional neutral stochastic partial integro-differential equations; exponential  $p$ -stability; stability in distribution;  $\alpha$ -resolvent operator

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