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Multidimensional nonlinear pseudo-differential evolution equation with p-adic spatial variables.

We study the Cauchy problem for p-adic nonlinear evolutionary pseudo-differential equations for complex-valued functions of a real positive time variable and p-adic spatial variables. Among the equations under consideration there is the p-adic analog of the porous medium equation (or more generally, the nonlinear filtration equation) which arise in numerous application in mathematical physics and mathematical biology. Our approach is based on the construction of a linear Markov semigroup on a p-adic ball and the proof of m-accretivity of the appropriate nonlinear operator. The latter result is equivalent to the existence and uniqueness of a mild solution of the Cauchy problem of a nonlinear equation of the porous medium type. (Received February 19, 2021)