Solvability for time-fractional semilinear parabolic equations with singular initial data

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November 24, 2021

Abstract

We discuss the existence and nonexistence of a local and global-in-time solution to the fractional problem $$ ¥begin{cases} ¥partial_t^{¥alpha}u=¥Delta u+f(u) & x¥in¥Omega,¥ 01$ one has $|f(¥xi)-f(¥eta)|¥le C(1+|¥xi|+|¥eta|)^{p-1}|¥xi-¥eta|$ for all $¥xi, ¥eta¥in ¥R$. Particular attention is paid to the doubly critical case $(p,r)=(1+2/N,1)$.

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