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Exceptional sets for solutions to quasilinear parabolic equations in weighted Sobolev spaces.

(Russian) [Zbl 1015.35022](#)

Vladikavkaz. Mat. Zh. 2, No. 3, 3-12 (2000).

The article is devoted to studying the question of elimination of singularity for bounded solutions to a quasilinear parabolic equation of the form

$$u_t - \operatorname{div} A(x, t, u, \nabla_x u) + B(x, t, u, \nabla_x u) = 0$$

for $(x, t) \in Q_T = \Omega \times (0, T)$, where $\Omega \subset \mathbb{R}^n$ is a bounded domain.

The main result of the article reads as follows: Let e be a compact subset of Q_T having zero (p, μ) -capacity. If $u \in W_{p, \text{loc}}^{1,0}(Q_T \setminus e, \mu) \cap L_\infty(Q_T)$ satisfies the equation on the set $Q_T \setminus e$, then there exists a unique continuation $\tilde{u} \in W_{p, \text{loc}}^{1,0}(Q_T, \mu)$ of the function u such that \tilde{u} is a solution to the equation.

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MSC:

- [35B60](#) Continuation and prolongation of solutions to PDEs
- [46E35](#) Sobolev spaces and other spaces of “smooth” functions, embedding theorems, trace theorems
- [35K60](#) Nonlinear initial, boundary and initial-boundary value problems for linear parabolic equations
- [46E30](#) Spaces of measurable functions (L^p -spaces, Orlicz spaces, Köthe function spaces, Lorentz spaces, rearrangement invariant spaces, ideal spaces, etc.)
- [35B05](#) Oscillation, zeros of solutions, mean value theorems, etc. in context of PDEs

Keywords:

[bounded solution](#); [singularity](#); [elimination of singular points](#)

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