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BOUNDARY VALUE PROBLEMS FOR SOME CLASSES OF SINGULAR PARABOLIC EQUATIONS

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We study the question of solvability of boundary value problems for the parabolic equation

$$Mu = g(x,t)u_t + L(x,t,D_x)u = f(x,t),\ \ (x,t) \in Q = G \times (0,T)\ \ (T \le \infty),$$

where L is an elliptic operator in the space variables of order $2m$ defined in a bounded domain $G \subset \mathbb{R}^n$. We assume that the operator L is coercive and the corresponding boundary value problem $Lu = f$, $B_j u\big|_{\partial G} = 0$ admits a variational statement. The function $g(x,t)$ is nonsmooth in x and can change its sign in Q.

Key words and phrases: boundary value problems for parabolic equations, parabolic equation with changing time direction, singular parabolic equation.

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