ON THE RESOLUTION OF A PARABOLIC
EQUATION IN A NONREGULAR DOMAIN OF $\mathbb{R}^3$

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Abstract. In this work we give new results of existence, uniqueness and maximal regularity of a solution to a parabolic equation set in a nonregular domain Q with Cauchy-Dirichlet boundary conditions, where $Q = \left\{ (t, x_1) \in \mathbb{R}^2 : 0 < t < T ; \varphi_1(t) < x_1 < \varphi_2(t) \right\} \times]0, b[\subseteq \mathbb{R}^3$ with some assumptions on the functions $(\varphi_i)_{i=1,2}$. The right-hand side term of the equation is taken in $L^2(Q)$. The method used is based on the approximation of the domain Q by a sequence of subdomains $(Q_n)_n$ which can be transformed into regular domains. This work is an extension of the one space variable case studied in [12].

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