

Differential Equations 2008 vol.44 N1, pages 77-84

Exact penalty operators and regularization of parabolic variational inequalities with an obstacle inside a domain

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Abstract

A class of parabolic variational inequalities with zero obstacle inside the domain is considered. For this class, exact penalty operators are defined, which are then used to construct and study regularization methods. The following estimates are obtained for the closeness of the original and regularized problem: $u - \varepsilon 1 \leq u_\varepsilon + \varepsilon 1$ and $\|u - u_\varepsilon\|_{L^2(0,T;V_0)} = O(\varepsilon^{3/4})$. © 2008 MAIK Nauka.

<http://dx.doi.org/10.1007/s10625-008-1007-1>
