

Regularity of the solution of the free boundary problem for the porous medium equation, *St. Petersburg Math. J.*, 12, № 2 (2000), 259-278. (N.V. Krasnoschek).

Abstract

The regularity properties of the solution of the initial boundary value problem with free boundary for the nonlinear degenerate equation $v_t = (v^m)_{xx}$, $m > 1$, are investigated in the case of one spatial variable. The condition $v = 0$ is fulfilled on the free boundary, and the Darcy law governs its velocity. The differential properties of the free boundary are established in dependence on the smoothness of the problem data up to the initial moment.