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W. Y. Chan* (wchan@semo.edu), Department of Mathematics, Southeast Missouri State University, Cape Girardeau, MO 63701-6700. *A Degenerate Semilinear Parabolic Problem with Solution Blows Up at the Boundary.*

Let $T \leq \infty$, q, γ, a and p be constants such that $q \geq 0$, $\gamma \in [0, 1)$, $a > 0$ and $p > 1$. We study existence and blow-up of the solution of the following degenerate first initial-boundary value problem

$$x^q u_t = (x^\gamma u_x)_x + u^p \text{ for } (x, t) \in (0, a) \times (0, T),$$

$$u(x, 0) = u_0(x) \text{ for } x \in [0, a], u(0, t) = 0 = u(a, t) \text{ for } t \in (0, T),$$

where $u_0(x)$ is a nonnegative function and $u_0(x) \in C^{2+\alpha}([0, a])$ for some $\alpha \in (0, 1)$. where $u_0(x)$ is a nonnegative function and $u_0(x) \in C^{2+\alpha}(\bar{\Omega})$ for some $\alpha \in (0, 1)$. (Received September 24, 2005)