1069-35-26 **Sukjung Hwang*** (shwang@iastate.edu), 4329 Linclon Swing St. Unit 32, Ames, IA 50014. *The Holder continuity of solutions to the generalized p-Laplacian type of parabolic equation.* Preliminary report.

In 1986, DiBenedetto introduced the intrinsic scaling idea, which has been used to prove Hölder continuity of solutions of both degenerate and singular $p-$Laplacian elliptic and parabolic equations. Degenerate and singular equations have been studied separately mainly because of their different natures although there are regularity theories holding for both type of equations.

For elliptic equations, Lieberman provided a uniform proof for both degenerate and singular cases in 1991. A new proof of Hölder continuity for solutions of degenerate parabolic equations by Gianazza, Surnachev, and Vespri simplifies DiBenedetto's original proof by relying on strong geometry. We modify these arguments to obtain Hölder continuity of solutions for equations of the form

$$u_t - \operatorname{div}\left(g(|Du|)\frac{Du}{|Du|}\right) = 0,$$

where g is a continuous nonnegative increasing function with $g(0) = 0$ such that the antiderivative of g, say G, satisfies Δ_2 and ∇_2 conditions; that is, there exist some positive constants g_0 and g_1 such that $1 < g_0 \leq g_1 < \infty$ and

$$g_0 G(a) \leq a g(a) \leq g_1 G(a) \quad \text{for} \quad a > 0.$$

(The standard $p-$Laplacian equation corresponds to $g(a) = a^{p-1}$.) (Received November 30, 2010)