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Sukjung Hwang\* (shwang@iastate.edu), 421 Carver Hall, Ames, IA 50010, and Gary
Lieberman (lieb@iastate.edu), 422 Carver Hall, Ames, IA 50010. Hölder continuity of a
bounded weak solution of generalized parabolic p-Laplacian type equations. Preliminary report.

Originally DiBenedetto and Chen-DiBenedetto gave proofs of Hölder continuity of a bounded weak solution of nonlinear parabolic p-Laplacian equations by separating degenerate (p > 2) and singular (1 ) cases because of differentnatures. Here we generalize structure conditions of <math>p-Lapalcian equation to deliver a uniform proof for the Hölder continuity of a bounded weak solution of both degenerate and singular cases by adopting Lieberman's work on nonlinear elliptic p-Laplacian equations considering in the setting of Orlicz spaces. Using two kinds of energy estimates, the local energy and logarithmic energy integrals, we capture behaviors of degenerate and singular equations without separation. Also using geometric characters, our proof does not rely on any of alternatives which is based on the size of solutions. (Received July 27, 2011)