

Abstract

In this thesis we investigate an initial-boundary value problem for the evolution equation associated with the normalized p -Laplacian. We are interested in existence, uniqueness, and regularity of viscosity solutions. Indeed, there exists a unique viscosity solution u , which is Lipschitz continuous with respect to the time t and satisfies a local Lipschitz estimate with respect to x . Moreover, we study the long time behavior of the viscosity solution u and show that u converges to a spatial constant C , which is bounded by the minimum and the maximum of the initial datum. We compute numerical solutions of the problem and prove that the discrete solutions converge locally uniformly to the unique viscosity solution u in a smooth domain. Finally, we give a short overview over game theoretical aspects of the normalized p -Laplacian and related differential operators.