ABSTRACT APPROACH TO DEGENERATE PARABOLIC EQUATIONS WITH DYNAMIC BOUNDARY CONDITIONS

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Abstract. An initial boundary value problem of the nonlinear diffusion equation with dynamic boundary condition is treated. The existence problem of the initial-boundary value problem is discussed. The main idea of the proof is an abstract approach from evolution equations governed by subdifferentials. To apply this, the setting of suitable function spaces, more precisely the mean-zero function spaces, is important. In the case of dynamic boundary condition, the total mass, which is the sum of volumes in the bulk and on the boundary, is a point of emphasis. The existence of weak solutions is proved on this basis.

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