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Mixed problems for degenerate abstract parabolic equations and applications

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ABSTRACT.

Degenerate abstract parabolic equations with variable coefficients are studied. Here the boundary conditions are nonlocal. The maximal regularity properties of solutions for elliptic and parabolic problems and Strichartz type estimates in mixed Lebesgue spaces are obtained. Moreover, the existence and uniqueness of optimal regular solution of mixed problem for nonlinear parabolic equation is established. Note that, these problems arise in fluid mechanics and environmental engineering.

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