On some singular parabolic equations

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We discuss a class of diffusion equations whose diffusion coefficient vanishes on a lower-dimensional submanifold S of the closure of the underlying domain Ω. In the particular case where $S = \partial\Omega$, we are led to study problems without boundary conditions. Such equations generate analytic semigroups possessing maximal regularity in appropriate weighted L_p-Sobolev spaces.

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