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A degenerate elliptic-parabolic problem with nonlinear dynamical boundary conditions.

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Summary: We prove existence and uniqueness of weak solutions for a general degenerate elliptic-parabolic problem with nonlinear dynamical boundary conditions. Particular instances of this problem appear in various phenomena with changes of phase like the multiphase Stefan problem and in the weak formulation of the mathematical model of the so-called Hele-Shaw problem. Also, the problem with nonhomogeneous Neumann boundary conditions is included.

MSC:

[35K65](#) Degenerate parabolic equations

[35M10](#) PDEs of mixed type

[35R35](#) Free boundary problems for PDEs

[35J60](#) Nonlinear elliptic equations

[35D05](#) Existence of generalized solutions of PDE (MSC2000)

Cited in **21** Documents

Keywords:

[multiphase Stefan problem](#); [Hele-Shaw problem](#); [nonhomogeneous Neumann boundary conditions](#)

Full Text: [DOI](#)