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Full Bounded Solutions of Nonlinear Parabolic Equations with Nonlinear Boundary Conditions.

We are concerned with the existence of (full) bounded solutions of nonlinear second order parabolic equations on a domain which is bounded in space and unbounded in time (namely the entire real line). On the (lateral) boundary of the domain, nonhomogeneous Dirichlet or nonlinear Neumann or regular oblique boundary conditions are considered. Using a combination of a priori estimates, comparison techniques, interpolation inequalities, approximation, imbeddings of function spaces, and some functional analytic techniques, we obtain existence results for bounded solutions existing for all time. Additional conditions ensure uniqueness or multiplicity of solutions. Examples and counterexamples will also be presented. (Received August 28, 2006)