

EXISTENCE AND MULTIPLICITY OF SELF-SIMILAR SOLUTIONS FOR HEAT EQUATIONS WITH NONLINEAR BOUNDARY CONDITIONS

MARCELO FERNANDES FURTADO *

We are going to talk about self-similar solutions in the half-space for linear and semilinear heat equations with nonlinear boundary conditions. Existence, multiplicity, and positivity of these solutions are analyzed. Self-similar profiles are obtained as solutions of a nonlinear elliptic PDE with drift term and a nonlinear Neumann boundary condition. We consider subcritical and critical case nonlinearities by employing a variational approach and deriving some compact weighted embeddings for the trace operator.