

# Fading absorption in semilinear elliptic and parabolic equations

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Abstract: We study Dirichlet and Cauchy-Dirichlet problems with singular nonnegative data for semilinear elliptic and parabolic equations of diffusion-absorption type with absorption potential, degenerating on some manifolds in the closure of the domain under consideration. We investigate existence of nonnegative “large” and very singular (more singular, than corresponding fundamental) solutions in dependence of character of degeneration of the potential and find some sufficient and necessary conditions of existence. In some model situation we find criterium of existence if such a solution, which has form of some Dini-like condition.

Results of joint investigations with M. Marcus, L. Veron.