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Section:

10. Partial Differential Equations

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Kozlov, Vladimir, Linköping University, Sweden

Singularities of solutions of nonlinear elliptic equations

Singularities of solutions to boundary value problems for nonlinear partial differential equations and systems near boundary or interior point are studied. A dis cription of all possible singularities of solutions is given. The approach is based upon a spectral splitting of the boundary value problem near the point and the reduction of the initial problem to an investigatian of asymptotic behaviour of solution of a certain finite-dimensional dynamical system. This approach allows one to treat the case of non-smooth boundaries also.
These results are obtained together with V. Maz'ya. The linear version of our asymptotic theory is presented in the book:
Kozlov V. A., Mazýa V. G. Operator Differential Equations. Springer-Verlag, Monographs in Mathematics, to appear in 1998.