Levendorskii

Degenerate Elliptic Equations

0.1 The partial differential equation (1) (Au)(x) = L aa(x)(Dau)(x) = f(x) m lal9 is called elliptic on a set G, provided that the principal symbol a2m(X,€) = L aa(x)€a lal=2m of the operator A is invertible on G X (~n \ 0); A is called elliptic on G, too. This definition works for systems of equations, for classical pseudo differential operators ("pdo), and for operators on a manifold n. Let us recall some facts concerning elliptic operators. 1 lf n is closed, then for any s E ~, is Fredholm and the following a priori estimate holds (2) 1 2 Introduction lf m > 0 and A: C=(O; C') -+ L (0; C') is formally self - adjoint 2 with respect to a smooth positive density, then the closure Ao of A is a self - adjoint operator with discrete spectrum and for the distribu tion functions of the positive and negative eigenvalues (counted with multiplicity) of Ao one has the following Weyl formula: as t -+ 00, (3) n 2m = t / ll N±(1,a2m(x,e))dxde T·O\O (on the right hand side, N±(t,a2m(x,e))are the distribution functions of the matrix a2m(X,e): C' -+ CU).

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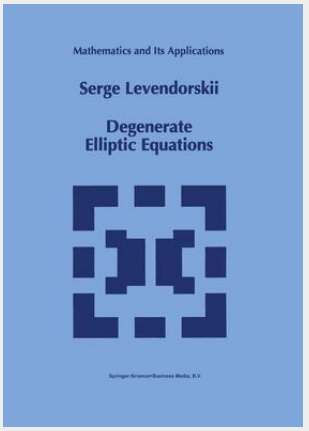

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