

Semilinear boundary value problems for degenerate pseudodifferential operators in spaces of Sobolev type

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Abstract: Boundary value problems for degenerate semilinear elliptic pseudodifferential operators are considered. Using the apparatus of the theory of pseudodifferential operators, function spaces introduced in [4-8], and the Rabinowitz construction [12] based on the Borsuk theorem (see [11]), we prove the existence of solutions of the problem in suitable function spaces. ?? 2008 Pleiades Publishing, Ltd.

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References:

1. Agmon, S., Douglis, A., Nirenberg, L., Estimates near the Boundary for Solutions of Elliptic Partial Differential Equations Satisfying General Boundary Conditions, I (1959) Comm. Pure Appl. Math., 12, pp. 623-727
2. Agranovich, M.S., Elliptic Singular Integro-Differential Operators (1965) Uspekhi Mat. Nauk, 20, pp. 3-120. , 5
3. Brezis, H., (1983) Analyse Fonctionnelle, , Masson Paris
4. Chuong, N.M., Tuan, D.A., A Boundary Value Problem for Singular Integro-Differential Operators in $H^{l,p}$, 1 <
5. p <
6. ?? (2002) Preprint 2002/28, , Institute of Mathematics Hanoi
7. Chuong, N.M., Kiet, T.T., A Non-Classical Pseudodifferential Boundary Value Problem in Sobolev Spaces $H^{l,p}$, 1 <
8. p <
9. ?? (2003) Preprint 2003/28, , Institute of Mathematics Hanoi

10. Chuong, N.M., Degenerate Parabolic Pseudodifferential Operators of Variable Order (1983) Dokl. Akad. Nauk SSSR, 268, pp. 1055-1058. , 5
11. Egorov Yu., V., Chuong, N.M., Some Semilinear Boundary Value Problems for Singular Integro-Differential Equations (1998) Uspekhi Mat. Nauk, 53, pp. 249-250. , 6
12. Egorov Yu., V., Chuong, N.M., Tuan, D.A., A Semilinear Nonclassical Pseudodifferential Boundary Value Problem in the Sobolev Spaces (2003) C. R. Math. Acad. Sci. Paris, 337, pp. 451-456. , 7
13. Hörmander, L., (1985) The Analysis of Linear Partial Differential Operators, , Springer Berlin
14. Grushin, V.V., Vishik, M.I., A Certain Class of Degenerate Elliptic Equations of Higher Orders (1969) Mat. Sb., 79, pp. 3-36. , 1
15. Nirenberg, L., (1974) Topics in Nonlinear Functional Analysis, , Courant Institute of Mathematical Sciences, New York University New York
16. Rabinowitz, P.H., A Note on a Nonlinear Elliptic Equation (1972) Indiana Univ. Math. J., 22, pp. 43-49