

ON FREDHOLM TYPE INTEGRAL EQUATION IN TWO VARIABLES

B. G. PACHPATTE

Abstract. The aim of this paper is to study some basic properties of solutions of a certain Fredholm type integral equation in two variables. The tools employed in the analysis are based on the applications of the Banach fixed point theorem and the new integral inequality with explicit estimate.

Mathematics subject classification (2000): 34K10, 35R10.

Keywords and phrases: Fredholm type integral equation, two variables, Banach fixed point theorem, integral inequality, Bielecki type norm, existence and uniqueness, estimates on the solutions.

REFERENCES

- [1] A. BICA, V. A. CĂUȘ AND S. MUREȘAN, *Application of a trapezoid inequality to neutral Fredholm integro-differential equations in Banach spaces*, J. Inequal. Pure and Appl. Math. **7**, 5 (2006), Art. 173.
- [2] A. BIELECKI, *Une remarque sur la méthode de Banach-Cacciopoli-Tikhonov dans la théorie des équations différentielles ordinaires*, Bull. Acad. Polon. Sci. Math. Phys. Astr. **4**(1956), 261–264.
- [3] B. CAHLON AND D. WESTREICH, *Complete continuity of integro-differential operators with discontinuous kernels and collectively compact approximations*, J. Math. Anal. Appl. **71**(1979), 313–332.
- [4] C. CORDUNEANU, *Integral Equations and Applications*, Cambridge University Press, 1991.
- [5] B. G. PACHPATTE, *Integral and Finite Difference Inequalities and Applications*, North-Holland Mathematics Studies, Vol. 205, Elsevier Science B.V. Amsterdam, 2006.
- [6] B. G. PACHPATTE, *On Volterra-Fredholm integral equation in two variables*, Demonstratio Mathematica **XL**(4)(2007), 839–852.
- [7] B. G. PACHPATTE, *On Fredholm type integrodifferential equation*, Tamkang Jour. Math. **39**, 1(2008), 85–94.
- [8] B. G. PACHPATTE, *On Volterra and Fredholm type integrodifferential equations*, Tamsui Oxford J. Math. Sci. **24** (2008), to appear.