

COMPARISON INEQUALITIES FOR PARTIAL FINITE DIFFERENCE EQUATIONS

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Abstract. The aim of the present note is to establish some new comparison inequalities related to certain partial finite difference equations by using a fairly elementary analysis.

Mathematics subject classification (2000): 26D10, 26D15.

Key words and phrases: comparison inequalities, partial finite difference equations, iterative methods, fixed point equations, behavior of solutions, dependency of solutions, initial values.

REFERENCES

- [1] D. BAINOV AND P. SIMEONOV, *Integral Inequalities and Applications*, Kluwer Academic Publishers, Dordrecht, 1992.
- [2] W. G. KELLEY AND A. PETERSON, *Difference Equations: An introduction with applications*, Academic Press, New York, 1991.
- [3] M. KWAPIZ, *Some remarks on comparison theorems for discrete inequalities*, J. Differential Equations **79** (1989), 258–265.
- [4] M. KWAPIZ, *On the error evaluation of approximate solutions of discrete equations*, Nonlinear Analysis TMA **13** (1989), 1317–1327.
- [5] R. E. MIEKENS, *Difference Equations*, Van Nostrand Reinhold Comp., New York, 1987.
- [6] B. G. PACHPATTE, *Finite-difference inequalities and an extension of Lyapunov's method*, Michigan Math. J. **18** (1971), 385–391.
- [7] B. G. PACHPATTE, *Inequalities for finite difference equations*, Marcel Dekker, Inc., New York, 2002.
- [8] R. REDHEFFER AND W. WALTER, *A comparison theorem for difference inequalities*, J. Differential Equations **44** (1982), 111–117.
- [9] S. SUGIYAMA, *Comparison theorems on difference equations*, Bull. Sci. Engr. Research Lab. Waseda Univ. **47** (1970), 77–82.
- [10] S. SUGIYAMA, *Difference inequalities and their applications to stability problems*, Lecture Notes in Math. Springer-Verlag, New York, **243** (1971), 1–15.