Existence of positive periodic solutions of functional difference equations with sign-changing terms

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ABSTRACT.

This paper is concerned with the nonlinear functional difference equation

$$\Delta x(n) = -a(n)x(n) + \lambda h(n)f(n, x(n-\tau(n))),$$

where h and f may change sign. Sufficient conditions for the existence of at least one positive T-periodic solution are established.

REFERENCES

- [1] Cahen, P.-J., Torsion theories and commutative algebras, Ph. D. Thesis, Queen's University, Kingston, 1973
- [2] Cahen, P.-J., Torsion theory and associated primes, Proc. Amer. Math. Soc. 38 (1973), No. 3, 471-476
- [3] Cahen, P.-J., Commutative torsion theory, Trans. Amer. Math. Soc. 84 (1973), 73-86
- [4] Castaño-Iglesias, F., Năstăsescu, C. and Năstăsescu, L., Locally stable Grothendieck categories. Applications, (submitted)
- [5] Gabriel, P., Des catégories abeliennes, Bull. Soc. Math. France 90 (1962), 323-448
- [6] Năstăsescu, C., Teorie della torsione, Quaderni dei Gruppi di Ricerca del Consiglio Nazionale delle Ricerche, Istituto Matematico dell' Università di Ferrara, 1974
- [7] Năstăsescu, C. and Van Oystaeyen, F., Dimensions of Ring Theory, Mathematics and Its Applications, D. Reidel Publishing Company, Dordrecht-Boston-Lancaster-Tokyo, 1987

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