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Abstract

: In this thesis, we discuss the monotone iterative method for nonlinear three-point boundary value problems with and without impulse effects. As a first problem, we apply the method of upper and lower solutions together with monotone iterative technique to generate a sequence of iterates converging quadratically to the unique solution of a second order nonlinear three-point boundary value problem. The convexity and concavity assumptions on the nonlinearities involved in the problem are relaxed and it has been shown that the nonlinearities in the boundary conditions can be handled on the pattern similar to the one used in tackling the nonlinearity involved in the differential equation. As a second problem, we develop the generalized quasilinearization technique for an impulsive hybrid general three-point boundary value problem and obtain sequences of approximate solutions converging monotonically and quadratically to the unique solution of the problem. It has been found that several interesting results can be recorded as a special case of the work established in this thesis

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