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SHOOTING METHOD USING DIFFERENCE EQUATIONS

RICHARD AVERY, DOUGLAS R. ANDERSON, JOHNNY HENDERSON AND JEFFREY W. LYONS*

Abstract. In this paper, we introduce an alternative fixed-point method to the classical shooting technique. Our approach solves a sequence of discrete initial value problems, which can be used to approximate the solution of a discrete boundary value problem, which in turn approximates the solution of a continuous boundary value problem, complete with error bounds. The key to the technique is the use of discrete initial value problems which are trivial to solve to approximate the trajectory of a solution of a continuous boundary value problem then using difference equations to approximate a solution. To demonstrate the method, we apply it to the right focal boundary value problem.

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