On Some Properties of Multistep Secondderivative Methods with Constant Coefficients

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Abstract:

Construction and application of the Multistep Secondderivative methods usually is connected with the name of Ştörmer, who was the first to construct such methods. This method in one version is fully investigated by Dahlquist. Since the beginning of 20 th century, new areas of mathematics have emerged, the research of which was formulated using Ordinary Differential Equations, ones with a special structure. New modifications have appeared in Multistep Secondderivative Methods with constant coefficients. This method is called the Ştörmer or Methods with special structure. Recently have constructed similar methods using other ways, such as using the Spline function used in the power series. Here, for this purpose, the Multistep Secondderivative method with constant coefficients is used. All the methods with Secondderivative have compared, have given some recommendation for their application, to solving some initial-value problems. Constructed concrete methods some of them have applied to solve model problems. Note that, have defined the condition, which usually have imposed on the coefficients of the Multistep Secondderivative methods.