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Lecture
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An Interval Version of Backward Differentiation (BDF) Method

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Abstract

We present an interval version of the well-know BDF method. The interval solution obtained by such a method contains its error. Using a computer implementation of the interval BDF method in floatin-point interval arithmetic together with the representation of initial data let us achieve the interval solution which contains all possible numerical errors. For the interval method considered we prove that the exact solution belongs to the interval solution obtained and we estimate the width of this interval solution. On the basis of some examples we compare the method presented with interval methods considered in our previous papers.

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Keywords: Interval Version of the BDF Method, Interval Methods for the Initial Value Problem