عنوان مقاله:
Solving Stiff Systems by using Symbolic - Numerical Method

محل انتشار:
مجله روشهای محاسباتی برای معادلات دیفرانسیل, دوره 8, شماره 2 (سال: 1399)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:
In this paper, an efficient symbolic-numerical procedure based on the power series method is presented for solving a system of differential equations. The basic idea is to substitute power series into the differential equations and to find a polynomial system of coefficients, where a powerful symbolic computation technique (i.e., Grobner basis) is used to solve the system. In fact, the proposed method is an excellent bridge between symbolic and numeric computation and specially, enables us to find the solution of linear and non-linear stiff systems. Numerical experiments were performed to justify our new approach.

کلمات کلیدی:
Stiff initial-value problems, symbolic-numeric method, Grobner basis, Faugere's algorithm