عنوان مقاله:

Extended block Hessenberg method for large-scale Sylvester differential matrix equations

محل انتشار:

تعداد صفحات اصل مقاله: 27

نویسنده:

Azita Tajaddini - Department of Applied Mathematics, Faculty of Mathematics and Computer, Shahid Bahonar University of Kerman, Kerman, Iran

خلاصه مقاله:

In this paper, we consider large-scale low-rank Sylvester differential matrix equations. We present two iterative methods for the approximate solution of such differential matrix equations. In the first method, exploiting the extended block Krylov method, we approximate the exponential matrix in the exact solution. In the second method, we first project the initial value problem onto an extended block Krylov subspace and acquire a low-dimensional low-rank Sylvester differential matrix equation. Then the reduced Sylvester differential matrix equation is solved by the backward differentiation formula method (BDF) and the derived solution is used to construct the low-rank approximate solution of the original initial value problem. The iterative approaches are followed until some certain accuracy is obtained. We give some theoretical results and some numerical examples to show the efficiency of the proposed methods.

کلمات کلیدی:

Sylvester differential matrix equations, Extended block Hessenberg, Low-rank

لینک ثابت مقاله در پایگاه سیویلیکا:

https://civilica.com/doc/2057437