

## عنوان مقاله:

New class of hybrid explicit methods for numerical solution of optimal control problems

## محل انتشار:

مجله ایرانی آنالیز عددی و بهینه سازی، دوره 11، شماره 2 (سال: 1400)

تعداد صفحات اصل مقاله: 22

## نویسندگان:

.M. Ebadi - *Department of Mathematics, University of Farhangian, Tehran, Iran*

.I. Malih Maleki - *Department of Mathematics, Payam-e-Nour University, Tehran, Iran*

.A. Ebadian - *Department of Mathematics, Urmia university, Urmia, Iran*

## خلاصه مقاله:

Forward-backward sweep method (FBSM) is an indirect numerical method used for solving optimal control problems, in which the differential equation arising from this method is solved by the Pontryagin's maximum principle. In this paper, a set of hybrid methods based on explicit  $\epsilon$ th-order RungeKutta method is presented for the FBSM solution of optimal control problems. Order of truncation error, stability region, and numerical results of the new hybrid methods were compared with those of the  $\epsilon$ th-order Runge Kutta method. Numerical results show that new hybrid methods are more accurate than the  $\epsilon$ th-order Runge–Kutta method and that their stability regions are also wider than that of the  $\epsilon$ th-order Runge–Kutta method.

## کلمات کلیدی:

FBSM, OCP, Stability analysis, Hybrid methods

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1295446>

