

DIFFERENTIAL INEQUALITIES FOR HYBRID FRACTIONAL DIFFERENTIAL EQUATIONS

BAPURAO C. DHAGE

Abstract. In this paper, some basic fractional differential inequalities for a finite system of an IVP of hybrid fractional differential equations with linear perturbations of second type are proved. An existence and a comparison theorem for the considered hybrid fractional differential have also been established.

Mathematics subject classification (2010): 34K10.

Keywords and phrases: Hybrid differential equation, differential inequalities, existence theorem, comparison result.

REFERENCES

- [1] B. C. DHAGE, *A nonlinear alternative with applications to nonlinear perturbed differential equations*, *Nonlinear Studies* **13** (4) (2006), 343–354.
- [2] B. C. DHAGE, *Quadratic perturbations of periodic boundary value problems of second order ordinary differential equations*, *Diff. Equ. & Appl.* **2** (2010), 465–486.
- [3] B. C. DHAGE AND P. V. MUGALE, *On some basic results for IVPs of hybrid fractional differential equations*, *Comm. Appl. Nonlinear Anal.* **19** (2012), 83–96.
- [4] V. LAKSHMIKANTHAM AND S. LEELA, *Differential and Integral Inequalities*, Academic Press, New York, 1969.
- [5] V. LAKSHMIKANTHAM, S. LEELA AND J. VASUNDHARA DEVI, *Theory of Fractional Dynamic System*, Cambridge Scientific Publishers Ltd. 2009, U.K.
- [6] A. A. KILBAS, H. M. SRIVASTAVA AND JUAN J. TRUJILLO, *Theory and Applications of Fractional Differential Equations*, North-Holland Mathematics Studies, 204. Elsevier Science B.V., Amsterdam, 2006.
- [7] I. PODLUBNY, *Fractional Differential Equations*, Academic Press, San Diego, 1999.