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S Chakraverty* (sne_chak@yahoo.com), Professor and Head, Department of Mathematics, National Institute of Technology Rourkela, Rourkela, Odisha 769008, India, and **Smita Tapaswini** (smitatapaswini@gmail.com), Senior Res. Fellow Department of Mathematics, National Institute of Technology Rourkela, Rourkela, Odisha 769008, India. *New Fibonacci Type Collocation Approach for n-th Order Uncertain Differential Equations.*

System parameters in governing differential equations of physical problems are in general considered as crisp or exact. But, rather than the particular value we may have only the vague, imprecise or incomplete information about the parameters being a result of errors in measurement, observation and experiment etc. which are uncertain in nature. These uncertainties can be modelled through probabilistic, interval or fuzzy theories. Unfortunately, probabilistic methods may not be able to deliver reliable results at the required precision without sufficient experimental data. As such in the recent decades, interval analysis and fuzzy theory are becoming powerful tools for real life applications. Accordingly, this paper proposes a new procedure for numerical solution of th order fuzzy differential equations using collocation type of method. Here, the solution of a fuzzy differential equation is expressed as a linear combination of the Fibonacci polynomials in the basis set involving unknown fuzzy constants. The applicability and effectiveness of proposed technique is shown by known example problems and compared with the exact results to illustrate the efficiency and reliability of the method. . (Received September 15, 2013)