

Haffila Putri Rahayu, 2015, **A SIR Epidemic Model In The Spread of Dengue Haemorrhagic Fever (DHF) Using Fractional Order**, This final project is under advised by Dr. Moh. Imam Utoyo, M.Si and Dr. Windarto, M.Si, Mathematics Departement, Science and Technology Faculty, Airlangga University, Surabaya.

ABSTRACT

Dengue Hemorrhagic Fever (DHF) is an infection caused by the dengue virus. The main vector spreads of dengue virus is *Aedes aegypti*. There is no vaccine to prevent human infection from DHF. Therefore, epidemic might be minimized by reducing mosquitos habitat and reducing the number of mosquito bites. In this paper, we discuss a fractional-order of Susceptible, Infected, and Removed (SIR) model in the spread of DHF. The model a modification of Side and Noorani model (2013). Here we modified an Ordinary Differential Equations System (ODES) nonlinear model from Side and Noorani (2013) into a Fractional Differential Equation System (FDES). Then we solve the model by Homotopy Pertubation Method (HPM). The greater the value of the fractional-order derivative given the faster change of state variables will be.

Keywords: Epidemic Model, SIR, Dengue Hemorrhagic Fever, Fractional Order, Homotopy Perturbation method.