Title: Treatment for the Human Immunodeficiency Virus (HIV) using Highly Active Antiretroviral Therapy

Author: Hem Raj Joshi, Xavier University, Department of Mathematics and CS, Cincinnati, OH

Abstract: We will present our work on treatment for the Human immunodeficiency virus (HIV) using Highly active antiretroviral therapy (HAART). We will use a system of ordinary differential equations (ODEs) describing the interaction of the HIV virus with the human immune system with two different classes of drugs representing a typical HAART treatment. Our goal is to maximize the CD4+ T-cells count in a patient while minimizing hazardous side effects of the drug treatment. We will derive optimality system and solve it numerically using a Runge-Kutta method.