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Antonio Mastroberardino*, axm62@psu.edu, and **Yuanji Cheng, Ahmed Abdelrazec** and **Hao Liu**. *Mathematical Modeling of the HIV/AIDS Epidemic in Cuba*. Preliminary report.

In this talk, I will present a nonlinear mathematical model for the transmission dynamics of HIV/Aids in Cuba. Due to Cuba's highly successful national prevention program, we assume that the only mode of transmission is through contact with people who do not know that they are HIV positive. We find the equilibria of the governing nonlinear system, perform a linear stability analysis, and then determine the threshold for global stability. We conclude with an application of optimal control as a demonstration of the effectiveness of the Cuban prevention program. (Received September 16, 2013)