1152-34-68 **Rebecca Segal*** (rasegal@vcu.edu), Richmond, VA 23221, and **Selenne Banuelos**, **Hayriye Gulbudak**, **Qimin Huang**, **Aadrita Nandi**, **Hwayeon Ryu** and **Mary Ann Horn**. *Modeling Phage-Antibiotic Combination Therapy for Multidrug Resistant Bacteria.*

Antimicrobial resistance (AMR) is a serious threat to global health today. The Centers for Disease Control and Prevention (CDC) estimates that at least 2 million people become infected by antibiotic-resistant bacteria and at least 23,000 people die each year as a direct result of these infections, costing the United States $55 billion annually. In 2018, The U.S. government launched the Antimicrobial Resistance Challenge to call for leaders from around the world to work together to improve antibiotic use, accelerate research on new antibiotics, and develop antibiotic alternatives. Phage therapy is the use of bacteriophages to treat pathogenic bacterial infections. The emergence of antibiotic resistance bacteria has resulted in a renewal of interest in use of phage therapy to treat bacterial infections. We present a system of nonlinear, ordinary differential equations to account for the interactions among bacteria, phage, antibiotics, and the immune system. We explore the effect of phage-antibiotic combination therapy by adjusting the phage and antibiotics dose and altering the timing. Stability and bifurcation analysis are presented along with a discussion of the model transients and the implications for the treatment of bacterial infections. (Received August 20, 2019)