

1106-VL-2416 **Richard Schugart***, Department of Mathematics, 1906 College Heights Blvd. #11078, Bowling Green, KY 42101-1078, **Stephen Guffey**, Department of Mathematics, 1906 College Heights Blvd. #11078, Bowling Green, KY 42101-1078, and **K Renee Fister**. *Using Optimal Control Theory with a PDE Model for the Treatment of a Bacterial Infection in a Wound Using Oxygen Therapy.*

An optimal control problem has been formulated for the treatment of a bacterial infection in a wound using oxygen therapy using partial differential equations. The optimality system and existence of the weak state solution will be presented in this talk. Existence of the optimal control and adjoint system will be discussed. (Received September 16, 2014)