1057-35-123 **W. Y. Chan*** (wchan@semo.edu), Department of Mathematics, Southeast Missouri State University, Cape Girardeau, MO 63701. *Blow-up and Quenching for Coupled Semilinear Parabolic Systems.*

Let γ, μ, and q be positive real numbers, p be a positive real number greater than or equal to 1, $T \leq \infty$, D be a bounded n-dimensional domain, ∂D and $\bar{D}$ be the boundary and closure of D respectively, Ω be $D \times (0,T)$, and Δ be the Laplace operator. In this talk, we study the blow-up and quenching of the following coupled semilinear parabolic systems:

$$u_t - \Delta u = \gamma v^p \text{ in } \Omega,$$

$$v_t - \Delta v = \mu \frac{1}{(1-u)^q} \text{ in } \Omega,$$

$$u(x,0) = u_0(x) \text{ on } \bar{D} \text{ and } v(x,0) = v_0(x) \text{ on } \bar{D},\ u(x,t) = 0 = v(x,t) \text{ on } \partial D \times (0,T),$$

where $u_0(x)$ and $v_0(x)$ belong to $C^{2+\alpha}\left(\bar{D}\right)$ for some $\alpha \in (0,1)$, and they are nonnegative functions on $\bar{D}$ such that $u_0(x) < 1$ on $\bar{D}$ and $u_0(x) = 0 = v_0(x)$ on ∂D. (Received January 16, 2010)