1110-35-127 **Eunkyung Ko**, **Mythily Ramaswamy** and **Ratnasingham Shivaji*** (r_shivaj@uncg.edu), Dept of Mathematics & Statistics, University of North Carolina at Greensboro, Greensboro, NC 27455. *Uniqueness of positive radial solutions for a class of semipositione problems on the exterior of a ball.*

We study positive radial solutions to: $-\Delta u = \lambda K(|x|)f(u);\ x \in \Omega_e$, where $\lambda > 0$ is a parameter, $\Omega_e = \{x \in \mathbb{R}^N : |x| > r_0,\ r_0 > 0, N > 2\}, \Delta$ is the Laplacian operator, $K \in C([r_0, \infty), (0, \infty))$ satisfies $K(r) \leq \frac{1}{r^{N+\mu}}; \mu > 0$ for $r \gg 1$ and $f \in C^2([0, \infty), \mathbb{R})$ is a concave increasing function satisfying $\lim_{s\to\infty} \frac{f(s)}{s} = 0$ and $f(0) < 0$ (semipositone). We are interested in solutions u such that $u \to 0$ as $|x| \to \infty$ and satisfy the nonlinear boundary condition $\frac{\partial u}{\partial \eta} + \tilde{c}(u)u = 0$ if $|x| = r_0$ where $\frac{\partial}{\partial \eta}$ is the outward normal derivative and $\tilde{c} \in C([0, \infty), (0, \infty))$ is an increasing function. We will establish the uniqueness of positive radial solutions for large values of the parameter λ. (Received February 16, 2015)