1146-35-428 **Nalin Fonseka*** (g_fonsek@uncg.edu), Dept of Mathematics & Statistics, University of North Carolina at Greensboro, Greensboro, NC 27412, and **R Shivaji** (shivaji@uncg.edu), **B Son** (byungjaeson@wayne.edu) and **K Spetzer** (knspetze@uncg.edu). *Classes of reaction diffusion equations where a parameter influences the equation as well as the boundary condition.*

We study positive solutions to steady state reaction diffusion equations of the form:

$$\begin{cases} -\Delta u = \lambda f(u); & \Omega, \\ \frac{\partial u}{\partial \eta} + \mu(\lambda) u = 0; & \partial\Omega, \end{cases}$$

where $\lambda > 0$, $\Omega$ is a bounded domain in $\mathbb{R}^N$; $N \geq 1$ with smooth boundary $\partial\Omega$, $\frac{\partial u}{\partial \eta}$ is the outward normal derivative of $u$, $\mu \in C([0,\infty))$ is strictly increasing such that $\mu(0) \geq 0$ and $f \in C^2([0, r_0))$ with $0 < r_0 \leq \infty$. If $r_0 < \infty$ we assume $f \in C^2([0, r_0])$ with $f(r_0) = 0$ and $f(s) \leq 0$ for $s \in (r_0, \infty)$, and if $r_0 = \infty$ we assume $\lim_{s\to\infty} f(s) > 0$ and $\lim_{s\to\infty} \frac{f(s)}{s} = 0$ (sublinear at $\infty$). Note here that the parameter $\lambda$ influences both the equation and the boundary condition. We discuss existence, nonexistence, multiplicity and uniqueness results for the cases when (A) $f(0) = 0$, (B) $f(0) < 0$, and (C) $f(0) > 0$. We obtain existence and multiplicity results by the method of sub-super solutions and uniqueness results by comparison principles and a priori estimates. (Received January 28, 2019)