1073-35-48 **Eunkyung Ko*** (ek94@msstate.edu), 319 N.Jackson st. 1A, Starkville, MS 39759. *Uniqueness and multiplicity results for classes of infinite positone problems.*

We study positive solutions to the singular boundary value problem

$$-\Delta u = \lambda \frac{f(u)}{u^\beta} \qquad \text{in } \Omega,$$

$$u = 0 \qquad \text{on } \partial\Omega,$$

where λ is a positive parameter, $\beta \in (0,1)$ and Ω is a bounded domain in $\mathbb{R}^N, N \geq 1$. Here $f \in C([0,\infty),(0,\infty))$ is nondecreasing and satisfies $\lim_{u\to\infty} \frac{f(u)}{u^{\beta+1}} = 0$. We discuss the existence of multiple positive solutions for a certain range of λ and a uniqueness result for $\lambda \gg 1$. A simple model that will satisfy our hypotheses is $f(u) = e^{\frac{\alpha u}{\alpha+u}}$ for $\alpha \gg 1$. We extend our multiplicity result to classes of systems, including $p-$Laplacian systems, when the nonlinearities satisfy certain combined sublinear conditions at infinity. We also extend our results to the case when Ω is an exterior domain. (Received July 21, 2011)