1139-34-53 **Maya Chhetri**, **Lakshmi Sankar**, **Ratnasingham Shivaji** and **Byungjae Son***
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*An existence result for superlinear semipositone p-Laplacian systems on the exterior of a ball.*

We study the existence of positive radial solutions to the problem

$$\begin{cases} -\Delta_p u = \lambda K_1(|x|) f(v) & \text{in } \Omega_e, \\ -\Delta_p v = \lambda K_2(|x|) g(u) & \text{in } \Omega_e, \\ u = v = 0 & \text{if } |x| = r_0, \\ u(x) \to 0, v(x) \to 0 & \text{as } |x| \to \infty, \end{cases}$$

where $\Delta_p w := \operatorname{div}(|\nabla w|^{p-2}\nabla w)$, $1 < p < n$, $\lambda$ is a positive parameter, $r_0 > 0$ and $\Omega_e := \{x \in \mathbb{R}^n | \ |x| > r_0\}$. Here $K_i : [r_0, \infty) \to (0, \infty)$, $i = 1, 2$ are continuous functions such that $\lim_{r\to\infty} K_i(r) = 0$, and $f, g : [0, \infty) \to \mathbb{R}$ are continuous functions which are negative at the origin and have a superlinear growth at infinity. We establish the existence of a positive radial solution for small values of $\lambda$ via degree theory and rescaling arguments. (Received January 23, 2018)