Jahmario Williams*, 110 Lincoln Green Apt 318, Starkville, MS 39759, and Hai Dang, 410 Allen Hall 175 President’s Circle, Mississippi. Positive radial solutions for a class of singular p-Laplacian system in a ball.

We prove the existence and nonexistence of positive radial solutions for the system

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\begin{align*}
-\Delta_p u_1 &= h_1(u_2) + \mu_1 f_1(u_2) \quad \text{in } B, \\
-\Delta_p u_2 &= h_2(u_1) + \mu_2 f_2(u_1) \quad \text{in } B, \\
u_1 = u_2 &= 0 \quad \text{on } \partial B.
\end{align*}
\]

where \(\Delta_p z := \text{div} (|\nabla z|^{p-2} \nabla z)\), \(p > 1\), \(B\) is the open unit ball in \(\mathbb{R}^n\), \(h_i, f_i : (0, \infty) \to \mathbb{R}\) with \(f_i\) asymptotically \(p\)-linear at \(\infty\), and \(\mu_i\) are positive constants, \(i = 1, 2\). (Received September 12, 2012)