1105-35-33 **Sarath Sasi*** (sasi@ntis.zcu.cz), **Pavel Drábek** and **Anoop Thazhe Veetil**. *Weighted quasilinear eigenvalue problems in exterior domains.*

We consider the following weighted eigenvalue problem in the exterior domain:

$$\begin{cases} -\Delta_p u = \lambda K(x)|u|^{p-2}u \quad \text{in } B_1^c, \\ \qquad u = 0 \quad \text{on } \partial B_1, \end{cases}$$

where Δ_p is the p-Laplace operator with $p > 1$, and B_1^c is the exterior of the closed unit ball in $\mathbb{R}^N$ with $N \geq 1$. There is no restriction on the dimension N in terms of p, i.e., we allow both $1 < p < N$ and $p \geq N$. The weight function K is locally integrable on B_1^c and is allowed to change its sign. For some appropriate choice of w, a positive weight function on the interval $(1, \infty)$, we prove that the Beppo-Levi space $\mathcal{D}_0^{1,p}(B_1^c)$ is compactly embedded into the weighted Lebesgue space $L^p(B_1^c; w(|x|))$. The existence of the positive eigenvalue for the above problem is proved for K such that suppK^+ is of non-zero measure and $|K| \leq w$. Further, we discuss the positivity, the regularity and the asymptotic behaviour at infinity of the first eigenfunctions. (Received August 12, 2014)