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ERRATUM

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Erratum: Inverse nodal problem for *p*-Laplacian energy-dependent Sturm-Liouville equation

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In this note, we correct some mistakes in Theorem 2.1 and Theorem 2.2 which are given in Ref. [1].

Consider the problem (1.3), (1.4) in [1].

Theorem 2.1 [1] *The eigenvalues* λ_n *of the Dirichlet problem* (1.3), (1.4) *are*

$$\lambda_n^{2/p} = n\pi_p + \frac{1}{p(n\pi_p)^{p-1}} \int_0^1 q(t)\,dt + \frac{2}{p(n\pi_p)^{\frac{p-2}{2}}} \int_0^1 r(t)\,dt + O\left(\frac{1}{n^{\frac{p}{2}}}\right). \tag{2.4}$$

Theorem 2.2 [1] *For the problem* (1.3), (1.4), *the nodal point expansion satisfies*

$$x_j^n = \frac{j}{n} + \frac{j}{pn^{p+1}(\pi_p)^p} \int_0^1 q(t)\,dt + \frac{2j}{pn^{\frac{p}{2}+1}(\pi_p)^{\frac{p}{2}}} \int_0^1 r(t)\,dt + \frac{2}{(n\pi_p)^{\frac{p}{2}}} \int_0^{x_j^n} r(x) S_p^p\,dx$$
$$+ \frac{1}{(n\pi_p)^p} \int_0^{x_j^n} q(x) S_p^p\,dx + O\left(\frac{1}{n^{\frac{p}{2}+2}}\right).$$

Proof Let $\lambda = \lambda_n$; integrating (2.3) from 0 to x_j^n, we have

$$\frac{j \cdot \pi_p}{\lambda_n^{2/p}} = x_j^n - \int_0^{x_j^n} \frac{2r(x)}{\lambda_n} S_p^p\,dx - \int_0^{x_j^n} \frac{q(x)}{\lambda_n^2} S_p^p\,dx.$$

By using the estimates of eigenvalues as

$$\frac{1}{\lambda_n^{2/p}} = \frac{1}{n\pi_p} + \frac{1}{p(n\pi_p)^{p+1}} \int_0^1 q(t)\,dt + \frac{2}{p(n\pi_p)^{\frac{p}{2}+1}} \int_0^1 r(t)\,dt + O\left(\frac{1}{n^{\frac{p}{2}+2}}\right),$$

we obtain the result. □

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Reference

1. Koyunbakan, H: Inverse nodal problem for *p*-Laplacian energy-dependent Sturm-Liouville equation. Bound. Value Probl. **2013**, 272 (2013). doi:10.1186/1687-2770-2013-272

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