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Correction to

"Asymptotic Stability of Solitons for the Subcritical Generalized KdV Equations"

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Proof of Lemma 9 in Section 5 is incorrect as written. Indeed, we cannot say directly from (60) and the fact that $\widetilde{L}$ has three nonpositive eigenvalues that the kernel of L_1 is $\{0\}$. The proof of this fact is as follows.

From the minoration of L_1 and (i), as in the proof of (iii), if we assume $\operatorname{Ker}(L_1) \neq \{0\}$, then $\operatorname{Ker}(L_1)$ is generated by $\psi_2 \neq 0$ even. In this situation, we cannot claim (iii) directly. We argue as follows. Let $\varepsilon_0 > 0$ such that $\varepsilon_0 < 5 - \frac{117}{25}$, for $p = 2$, $\varepsilon_0 < 12 - \frac{234}{25}$, for $p = 3$ and $\varepsilon_0 < 22 - \frac{78}{5}$, for $p = 4$. Consider

$$L_{\varepsilon_0} u = L_1 u - \frac{3}{2} \frac{\varepsilon_0}{\mathrm{ch}^2(\frac{p-1}{2} y)} u.$$

By the calculations of pp. 248 and 249, we have $L_{\varepsilon_0} \geqq \widetilde{L}$, and since $\varepsilon_0 > 0$, $\operatorname{ind}(L_{\varepsilon_0}) = 2$ on H_e^1. However, by the numerical results (60) and (61) (see pp. 250 and 251), which are stable with respect to ε_0, we have $\operatorname{ind}(L_{\varepsilon_0}) = 1$ on H_e^1, which is a contradiction. Thus $\operatorname{Ker}(L_1) = \{0\}$. Then, the rest of the proof of the lemma is the same.

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