



Corrigendum

Corrigendum to “Scattering from local deformations of a semitransparent plane” [J. Math. Anal. Appl. 473 (1) (2019) 215–257]



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ARTICLE INFO

Article history:

Received 23 September 2019
Available online 8 October 2019
Submitted by P. Exner

Keywords:

Scattering theory
Point interactions supported by unbounded hypersurfaces
Kreĭn’s resolvent formulae

ABSTRACT

We correct a minor mistake in the final formula for the scattering matrix.

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Formula (7.5) in [1] gives (using the Birman-Kato invariance principle) the relation between the scattering matrices of the couples (A_F, A_0) and $(\phi(A_F), \phi(A_0))$, where $\phi(x) = (x - \mu)^{-1}$; since $\phi' < 0$, an adjoint was missing and the correct formula is

$$S_F(\lambda) = (S_F^\mu(1/(\lambda - \mu)))^* .$$

Therefore, formula (7.6) in [1, Corollary 7.2] slightly changes to

$$\begin{aligned} S_F(\lambda) &= (1 + 2\pi i \alpha L_F(\lambda)(1 + \alpha J M_{F,\Sigma}(\lambda^+))^{-1} J L_F(\lambda)^*)^* \\ &= 1 - 2\pi i \alpha L_F(\lambda)(1 + \alpha J M_{F,\Sigma}(\lambda^-))^{-1} J L_F(\lambda)^* . \end{aligned}$$

DOI of original article: <https://doi.org/10.1016/j.jmaa.2018.12.045>.

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Here we used, besides $J^2 = 1$, $J = J^*$, the definition

$$M_{F,\Sigma}(\lambda^\pm) := \lim_{\varepsilon \downarrow 0} \tau_\Sigma g_\Sigma(\lambda \pm i\varepsilon) \equiv \lim_{\varepsilon \downarrow 0} \tau_\Sigma(\tau_\Sigma R_0(\lambda \mp i\varepsilon))^*,$$

and the consequent relation $(M_{F,\Sigma}(\lambda^\pm))^* = M_{F,\Sigma}(\lambda^\mp)$.

We remark that all the other results in [1] are unaffected by the above changes; in particular, since $\|S_F(\lambda) - 1\|_{\mathfrak{B}(L^2(\mathbb{S}^2))}^2 = \|S_F(\lambda)^* - 1\|_{\mathfrak{B}(L^2(\mathbb{S}^2))}^2$, the estimate provided in [1, Theorem 7.7] still holds.

We also point out a misprint in the definition of the operator $g_\Sigma(z)$ appearing in [1, Theorem 5.1], where a \checkmark was missing: $g_\Sigma(z) := (\check{g}_\Sigma(\bar{z}))^*$. Finally, an “n” was missing in the e-mail addresses of two of the authors (C.C. and A.P.), you find here the correct ones.

References

- [1] Claudio Cacciapuoti, Davide Fermi, Andrea Posilicano, Scattering from local deformations of a semitransparent plane, *J. Math. Anal. Appl.* 473 (2019) 215–257.