



Erratum: The halfHartley and halfHilbert transforms [J. Math. Phys. 35, 2648 (1994)]

Stefano L. PaveriFontana and Paul F. Zweifel

Citation: [Journal of Mathematical Physics](#) **35**, 6226 (1994); doi: 10.1063/1.530670

View online: <http://dx.doi.org/10.1063/1.530670>

View Table of Contents: <http://scitation.aip.org/content/aip/journal/jmp/35/11?ver=pdfcov>

Published by the [AIP Publishing](#)

An advertisement banner for Maple 18. The background is dark blue with abstract, glowing light blue and purple geometric shapes. On the left, a red arrow-shaped box points right, containing the text 'Now Available!'. Below this, the 'Maple 18' logo is displayed in large, bold, blue and red letters, with the tagline 'The Essential Tool for Mathematics and Modeling' underneath. To the right of the logo, the text 'State-of-the-art environment for algebraic computations in physics' is written in white. Below this, a bulleted list of features is provided. At the bottom right, a blue button with white text says 'Read More'.

Now Available!

Maple 18
The Essential Tool for Mathematics and Modeling

State-of-the-art environment for algebraic computations in physics

- More than 500 enhancements throughout the entire Physics package in Maple 18
- Integration with the Maple library providing access to Maple's full mathematical power
- A full range of physics-related algebraic formulations performed in a natural way inside Maple
- World-leading tools for performing calculations in theoretical physics

[Read More](#)

Erratum: The half-Hartley and half-Hilbert transforms [J. Math. Phys. 35, 2648 (1994)]

Stefano L. Paveri-Fontana

Dipartimento di Matematica "Federigo Enriques," Università di Milano, via Saldini 50, Milano, Italy

Paul F. Zweifel

Center for Transport Theory and Mathematical Physics, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061-0435

(Received 23 June 1994; accepted for publication 6 July 1994)

It has been pointed out by Bruce Toomire¹ that Eq. (11a) of our paper is trivially solved by $X(z) = z^{n+1/2}$, $n \in \mathbb{Z}$. [The endpoint conditions² on $X(z)$ require the choice $n=0$.] Thus the limiting procedure of our paper is unnecessary.

The problem of inverting the half-Hilbert transform, Eq. (2.5), has been considered in the literature, as Toomire has also pointed out, in the book of Pipkin.³ However Pipkin's methods, based on complex analysis, are somewhat cumbersome and, in particular, the required properties of the data are not really studied. Moreover, Pipkin does not present the inverse in integral form [our Eq. (16)]. It is especially instructive to compare Pipkin's solution of the equation

$$k^{-1/2}H(a-k) = P \int_0^\infty g(w) \frac{dw}{w-k}, \quad \text{for } k > 0, \quad (1)$$

(pp. 220–221 of Ref. 3) with simple substitution of the left-hand side of Eq. (1) into our Eq. (16).

Vladimir Protopopescu has pointed out⁴ that the half-Hartley inverse formula obtained in our paper is a special case of a more general result of Pagani.⁵ While this is true, Pagani's general result is in terms of Anger functions⁶ which are not convenient, apparently, for either analytical or numerical evaluation. For the specific case we considered, Pagani's results are expressed in terms of Fresnel integrals which may be more convenient, numerically, than our procedure. Pagani's analysis does suggest, however, that our half-Hartley inverse results may be generalized using the same methods as in our paper, and we are working in that direction.

Finally, we point out a misprint in Eq. (2⁻¹) of our paper. In the integral, dy should be replaced by dx .

¹Private communication.

²C. V. M. van der Mee and P. F. Zweifel, J. Int. Eqs. Appl. 2, 185 (1990).

³A. C. Pipkin, *A Course on Integral Equations* (Springer-Verlag, Berlin, 1991).

⁴Private communication.

⁵C. Pagani, *Annali di Matematica Pura e Applicata* 99, 333 (1974).

⁶W. Magnus, F. Oberhettinger, and R. P. Soni, *Formulas and Theorems for the Special Functions of Mathematical Physics* (Springer-Verlag, New York, 1966).