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Marco Bertola* (marco.bertola@concordia.ca), 1455 de Maisonneuve W., LB 901-29, Montreal, Quebec H3G 1M8, Canada, and **Alexander Katsevich** and **Alex Tovbis**. *Application of Theta functions to the singular value decomposition of a finite Hilbert transform and the interior problem of tomography.*

The study of asymptotic behaviour of singular values of the Finite Hilbert Transform (FHT) on several intervals is instrumental to the study of stability of the reconstruction problem.

Via the “nonlinear steepest descent method” we obtained rigorous asymptotic estimates (including bounds on the error terms) for both the singular functions and the singular values. These expressions use a class of special functions that generalize the Jacobi theta function $\vartheta(z; \tau)$ and are called Riemann-Theta functions. The talk will try to recall briefly how these functions are defined and how the zeroes of a suitably chosen Theta functions are related to the asymptotic behavior of the singular values. (Received January 27, 2014)