

Stability and approximation of solutions in new reproducing kernel Hilbert spaces on a semi-infinite domain

Jabar Hassan¹ and David E. Grow²

¹Salahaddin University - Erbil College of Science

²Missouri University of Science and Technology

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Abstract

We introduce new reproducing kernel Hilbert spaces on a trapezoidal semi-infinite domain B_{∞} in the plane. We establish uniform approximation results in terms of the number of nodes on compact subsets of B_{∞} for solutions to nonhomogeneous hyperbolic partial differential equations in one of these spaces, $\widetilde{W}(B_{\infty})$. Furthermore, we demonstrate the stability of such solutions with respect to the driver. Finally, we give an example to illustrate the efficiency and accuracy of our results.

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Stability_and_Approximation.pdf available at <https://authorea.com/users/399289/articles/511826-stability-and-approximation-of-solutions-in-new-reproducing-kernel-hilbert-spaces-on-a-semi-infinite-domain>