

A Hilbert space approach to singularities of functions

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I will describe the notion of a *pseudomultiplier* of a Hilbert space \mathcal{H} of functions on a set Ω . Roughly, a pseudomultiplier of \mathcal{H} is a function which multiplies a finite-codimensional subspace of \mathcal{H} into \mathcal{H} , where we allow the possibility that a pseudomultiplier is not defined on all of Ω . A pseudomultiplier of \mathcal{H} has *singularities*, which comprise a subspace of \mathcal{H} , and generalize the concept of singularities of an analytic function, even though the elements of \mathcal{H} need not enjoy any sort of analyticity as functions on Ω . We analyse the natures of these singularities, and obtain a broad classification of them in function-theoretic terms.

The talk is based on joint work with Jim Agler and Zinaida Lykova.

- [1] Jim Agler, Zinaida Lykova and N. J. Young, A Hilbert space approach to singularities of functions, Journal of Functional Analysis Volume 284, Issue 6, 15 March 2023, open access, with link <https://doi.org/10.1016/j.jfa.2022.109826>