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Sven A. Wegner* (sven.wegner@uni-hamburg.de), Department of Mathematics, Bundesstraße 55, Hamburg, 20146. *The heart of the Banach spaces.*

Let X be a Banach space and let $Y \subset X$ be a subspace. If Y is closed in X then X/Y is a Banach space in the quotient norm. If Y is not closed, then this is wrong, even if Y is a Banach space in a stronger norm—as for example here: $\ell^1 \subset c_0$.

The fact, that there is no reasonable Banach space X/Y in the setting above, motivated Waelbroeck in the 1960s to consider ‘formal quotients’ instead. In 1982 Beilinson, Bernstein, Deligne defined ‘hearts of t-structures’ on triangulated categories. It turns out that in the special case of Banach spaces, their heart is precisely the category of formal quotients considered by Waelbroeck.

In the talk we sketch an explicit approach to the heart and discuss generalizations beyond the case of Banach spaces. The results are based on [1, 2, 3].

References

- [1] R. Henrard, A-C. van Roosmalen, S. Kvamme, and S.-A. Wegner, The left heart and exact hull of an additive regular category, arXiv:2105.11483, 2021.
- [2] M. Lawson and S. -A. Wegner, The category of Silva spaces is not integral, arXiv:2107.13901, 2021.
- [3] S.-A. Wegner, The heart of the Banach spaces, J. Pure Appl. Algebra **221** (2017), no. 11, 2880-2909.

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