

Intrinsic Localization of Frames

Martin Schäfer
Technische Universität Berlin
schaefer@math.tu-berlin.de

June 17, 2014

A (bi-)infinite matrix is called well-localized if its entries decay quickly away from the diagonal. This property is stable with respect to taking sums, products, and scalar multiples. Moreover, it was shown recently [2] that also the Moore-Penrose pseudoinverse maintains the localization (up to some degree).

This result promises many new applications, specifically towards the framework of α -molecules [1]. In the context of frames, (intrinsic) localization means that the associated Gramian is well-localized, and one of the main results of the theory of α -molecules is that frames of α -molecules are well-localized.

References

- [1] P. Grohs, S. Keiper, G. Kutyniok, and M. Schäfer. α -Molecules. 2014. manuscript.
- [2] P. Grohs and S. Vigogna. Intrinsic localization of anisotropic frames II: α -molecules. 2014. to appear.