Pairs of dual Gabor frames generated by functions of Hilbert-Schmidt type - DTU Orbit (08/11/2017)

Pairs of dual Gabor frames generated by functions of Hilbert-Schmidt type

We show that any two functions which are real-valued, bounded, compactly supported and whose integer translates each form a partition of unity lead to a pair of windows generating dual Gabor frames for (Formula presented.). In particular we show that any such functions have families of dual windows where each member may be written as a linear combination of integer translates of any B-spline. We introduce functions of Hilbert-Schmidt type along with a new method which allows us to associate to certain such functions finite families of recursively defined dual windows of arbitrary smoothness. As a special case we show that any exponential B-spline has finite families of dual windows, where each member may be conveniently written as a linear combination of another exponential B-spline. Unlike results known from the literature we avoid the usual need for the partition of unity constraint in this case.

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