Prime tight frames

We introduce a class of finite tight frames called prime tight frames and prove some of their elementary properties. In particular, we show that any finite tight frame can be written as a union of prime tight frames. We then characterize all prime harmonic tight frames and use this characterization to suggest effective analysis and synthesis computation strategies for such frames. Finally, we describe all prime frames constructed from the spectral tetris method, and, as a byproduct, we obtain a characterization of when the spectral tetris construction works for redundancies below two.

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