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Matthew Fickus* (Matthew.Fickus@afit.edu), AFIT/ENC, 2950 Hobson Way, WPAFB, OH 45433, and **Amina Chebira** and **Dustin G. Mixon**. *Filter bank fusion frames*.

A fusion frame is a sequence of orthogonal projection operators whose sum can be inverted in a numerically stable way. When properly designed, fusion frames can provide redundant encodings of signals which are optimally robust against certain types of noise and erasures. However, up to this point, few implementable constructions of such frames were known; we show how to construct them using oversampled filter banks. To be precise, we first provide polyphase matrix-based characterizations of filter bank fusion frames. We then use these characterizations to construct fusion frame versions of discrete wavelet and Gabor transforms, emphasizing those specific filters whose frequency responses are well-behaved. (Received September 11, 2009)