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Iowa City, IA. *Fractals from representations of Cuntz-algebras.*

Among the many approaches to analysis of fractals, we study here a representation theoretic framework; i.e., realizations of certain representations on Hilbert spaces H having associated families of closed subspaces in such a way that "non-overlapping frequency bands" correspond to orthogonal subspaces in H ; or equivalently to systems of orthogonal projections. Our analysis is based on Iterated Function Systems (IFS), and we outline the role of frequency bands for IFSs. Since the different frequency bands must exhaust the range for the entire IFS, in constructing representations, one must look for orthogonal projections which add to the identity operator in H . (Received January 16, 2015)