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Palle E. T. Jorgensen* (palle-jorgensen@uiowa.edu), Dept mathematics, MLH, University of Iowa, Iowa City, IA 52242. *Tilings in wavelet theory: IFS measures and wavelet packets*. Preliminary report.

The presentation makes connections between three closely intertwined problems: (i) certain partitions (tilings) of the integers; (ii) wavelet-packets; and (iii) generalized IFS-measures. The tilings in are arithmetic progressions at integral multiples of length equal to powers of natural numbers. The wavelet packets in (ii) are generated by a fixed system of wavelet filters (corresponding to a fixed number N of orthogonal frequency bands). From (ii) we obtain by methods from papers by the author and co-authors (Bratteli, Dutkay, Alpay, among others) certain representations of the Cuntz algebra O_N generating an algebra A of operators. And the IFS-measures in (iii) are from an associated maximal abelian subalgebra of A . (Received December 02, 2012)