

1030-41-6

Palle E. T. Jorgensen* (jorgen@math.uiowa.edu), Dept of Math, MLH, The University of Iowa, Iowa City, IA 52242. *Decomposition and generalized wavelet bases on fractals.*

The author is reporting on recent joint work with Dorin Dutkay, Keri Kornelson, and Karen Shuman on algorithmic wavelet constructions for a certain class of fractals. The fractals in question are generated by a specified and finite family of affine mappings, called affine Iterated Function Systems (IFSs). This work continues an earlier joint paper by Steen Pedersen and the speaker. One main novelty in our recent papers is that we now include IFSs with overlap. This turns out to give rise to a significantly different environment for the decomposition and basis constructions we have in mind. Some of our formulas have been tested on certain Sierpinski-like digital images by Jonas D'Andrea. (A joint paper by J. D'Andrea, K. Merrill, and J. Packer.) (Received March 13, 2007)