1108-42-12 **Palle E Jorgensen***, Palle Jorgensen, Math MLH, University of Iowa, Iowa City, IA. *New approached to spectral-to tile correspondences.*

In the talk, we will introduce an operator algebraic setting for computing and encoding orthonormal bases, with examples drawn from wavelets and fractal measures. The framework will be Hilbert spaces that arise naturally in iterated function systems, and in signal and image processing. The operator algebras involved will include Cuntz as well as a special family of irreducible representations. Some advantages of these tools are that they offer a new set of effective algorithms. (Received October 21, 2014)