999-41-241 **Douglas P Hardin*** (`doug.hardin@vanderbilt.edu`), SC 1326, Math Department, Vanderbilt University, Nashville, TN 37240-0001. *Constructing wavelets on nonuniform meshes using refinable macroelements.*

A *macroelement* is a collection of functions supported on a unit cell such as an interval or triangle together with simple rules for piecing the functions together to construct a basis of locally supported functions on a given mesh. In this talk I will discuss an approach for constructing orthogonal wavelets on nonuniform meshes using *refinable* macroelements. This is joint work with D. Bruff, G. Donovan, B. Kessler, and J. Geronimo. (Received August 24, 2004)