1096-65-1181 **Emily J Evans*** (ejevans@math.byu.edu), Provo, UT 84602, and **Michael A. Scott**. *The Mathematics of Hierarchical T-splines.*

Hierarchical B-splines were originally introduced in the CAD community nearly thirty years ago. Currently, hierarchical spline techniques are restricted to tensor product B-splines and NURBS. This restriction, coupled with the difficulty of encoding geometric information in the hierarchy, has greatly hampered their adoption as a CAD tool. To overcome these limitations we have extended analysis-suitable T-splines to the hierarchical unstructured regime. In this way, the design advantages of T-splines can be leveraged while introducing the analysis advantages of easily controlled hierarchies of locally refined analysis-suitable T-spline spaces. We present a simple characterization and construction for hierarchical analysis-suitable T-splines and demonstrate their potential as a basis for adaptive isogeometric analysis. (Received September 13, 2013)