1057-65-451   **Ricardo H. Nochetto*** (`rhn@math.umd,edu`), Department of Mathematics, University of Maryland, College Park, MD 20742, **Andrea Bonito**, Department of Mathematics, Texas A&M University, College Station, TX , and **M. Sebastian Pauletti**, Department of Mathematics, Texas A&M University, College Station, TX. *Geometrically Consistent Mesh Modification.*

We discuss a new paradigm in adaptivity: how to execute refinement, coarsening, and smoothing of meshes on manifolds with incomplete information about their geometry and yet preserve position and curvature accuracy. (Received January 26, 2010)