1007-53-189 **John Douglas Moore*** (moore@math.ucsb.edu), Department of Mathematics, University of California, Santa Barbara, CA 93106. *Generic Properties of Closed Parametrized Minimal Surfaces in Riemannian Manifolds.*

This talk will describe the foundations needed to develop a partial Morse theory for conformal harmonic maps $f : \Sigma \to M$, where Σ is a compact Riemann surface and M is a compact Riemannian manifold. This theory should parallel the well-known Morse theory of smooth closed geodesics.

The first step in developing such a theory consists of providing an analog of Abraham's bumpy metric theorem in the context of parametrized minimal surfaces. We have developed such a bumpy metric theorem, which states in part that when the ambient manifold M is given a generic metric, all prime closed parametrized minimal surfaces are as Morse nondegenerate as the group of conformal transformations of Σ allows. They are Morse nondegenerate in the usual sense if Σ has genus at least two, lie on two-dimensional nondegenerate critical submanifolds if Σ has genus one, and on six-dimensional nondegenerate critical submanifolds if Σ has genus zero.

We have also proven some results on the properties of minimal surfaces in a Riemannian manifold with generic metric, including the fact that such minimal surfaces are free of branch points. Additional generic properties will be described, as well as potential applications. (Received February 21, 2005)