1064-53-254 **Shihshu Walter Wei*** (wwei@ou.edu), Department of Mathematics, The University of Oklahoma, Norman, OK 73019. *Conformal, complex, and p-harmonic geometry.*

We recall a smooth map $u : M \to N$ between Riemannian manifolds is said to be a *p-harmonic map*, $p \geq 1$ if it is a critical point of p-energy functional E_p , given by $E_p(u) = \int_M |du|^p dv$ with respect to any compactly supported variations, where $|du|$ is the Hilbert-Schmidt norm of the differential du of u, and dv is the volume element of M.

Examples of p-harmonic maps include rigid motions in classical differential geometry, linear transformations in linear algebra, holomorphic maps in complex analysis and in several complex variables(in which $p = 2$), angle-preserving maps between n-dimensional manifolds in conformal geometry(in which $p = n$), geodesics, (conformal) minimal submanifolds(for every $p \geq 1$) , harmonic maps(in which $p = 2$), and much more.

We'll explore several natural links between the geometry of p-harmonic maps, conformal geometry, and complex geometry. Some applications to topology and partial differential equations will be considered. (Received September 11, 2010)