1100-22-339 **Jon Middleton*** (jmiddlet@ucsd.edu). *Hessians of Conformal Functionals as Invariant Hermitian Forms.* Preliminary report.

Let M be a compact manifold and $\mathcal{M}$ a tame Fréchet manifold of geometric structures on M. Let $H = \mathrm{diff}(M) \ltimes \exp(C^\infty(M))$, which acts on $\mathcal{M}$. A *conformal functional* F is a real-valued H-invariant function on $\mathcal{M}$ that is twice differentiable in Hamilton's sense. The location of extrema for conformal functionals has been of interest to those in conformal geometry, in which $\mathcal{M}$ is the space of Riemannian metrics and F is the zeta-regularized determinant of a Laplace-type differential operator.

In this talk, we will address both the space of Riemannian metrics and the space of strongly pseudoconvex CR structures on S^{2n-1}. Both spaces are acted upon by a real rank one Lie group G: $SO_0(2n,1)$ in the former case and $SU(n,1)$ in the latter. In each case $\mathcal{M}$ has a distinguished structure on which these groups act conformally. We will see that these structures are critical points for F, that the Hessian of F defines a Hermitian form of an admissible representation of G, and that this representation is an irreducible $A_{\mathfrak{q}}(\lambda)$. (Received February 10, 2014)