

Meeting: 998, Houston, Texas, SS 10A, Special Session on Complex Analysis and Operator Theory

998-51-368 **David E Barrett*** (barrett@umich.edu), Department of Mathematics, University of Michigan, 525 E. University Ave., Ann Arbor, MI 48109-1109. *Invariant path integrals from invariant distances*. Preliminary report.

This talk will outline connections between various geometric path integrals (all of which have some complex-analytic interest) and certain geometric “distance” functions (which in general will fail to be metrics). Topics covered will include

- the “affine arc length” from two-dimensional affine geometry;
- the “pseudo-arc” from Minkowski geometry;
- the “inversive arc length” from the geometry of the Riemann sphere;

and

- the arc length for horizontal curves in the Heisenberg group.

Some of the constructions to be discussed are quite classical while some other appear to be new, but in any case the emphasis will be on hidden similarities of these constructs.

Some of the material to be discussed represents joint work with Michael Bolt. (Received March 02, 2004)