1023-37-241 **Scot Adams*** (adams@math.umn.edu), School of Mathematics, 127 Vincent Hall, 206 Church St. SE, Minneapolis, MN. *From Lorentzian dynamics to the decay of matrix coefficients.*

The Howe-Moore theorem implies that any ergodic action of a connected noncompact, finite-center, simple Lie group is mixing. Thus, for example, ergodicity inherits to all noncompact closed subgroups, a very useful fact which immediately yields ergodicity of many geometrically-motivated actions. The proofs I know of Howe-Moore go via unitary representation theory. By thinking of a Hilbert space as an infinite-dimensional Riemannian manifold and by adjusting techniques originally used in studying Lorentzian (and Riemannian) dynamics, we can obtain a version of Howe-Moore that is valid for all connected Lie groups, though only useful for nonAbelian groups. Specifically, for any connected Lie group G, for any faithful irreducible unitary representation of G, we have: any matrix coefficient tends to zero, as $Ad(g)$ leaves compact subsets of $GL(\mathfrak{g})$, where $\mathfrak{g}$ is the Lie algebra of G. (Received August 30, 2006)