1016-46-163 **Todd Kemp*** (tkemp@math.cornell.edu), Cornell University, Department of Mathematics, Malott Hall, Ithaca, NY 14853-4201, and **Piotr Graczyk** and **Jean-Jacques Loeb**. *Strong hypercontractivity for subharmonic functions.*

The Ornstein-Uhlenbeck semigroup P_t is an object, with intimate ties to quantum field theory, which has been studied in a wide variety of contexts. E. Nelson's classic hypercontractivity theorem asserts that P_t is a contraction from L^p to L^r $(1 < p \leq r < \infty)$ for large enough time t. Later, S. Janson showed that, when restricted to holomorphic spaces, the contraction properties of the semigroup are surprisingly improved; this was later generalized to complex manifolds by L. Gross.

In this talk I will discuss recent joint with with P. Graczyk and J. Loeb in which we show that Janson's strong hypercontractivity theorem actually holds in wider function spaces: specifically, spaces of (logarithmically) subharmonic functions. I will also discuss the associated logarithmic Sobolev inequalities, and a very surprising result for symmetric measures on the real line. (Received February 10, 2006)