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**Javad Namazi\*** ([namazi@fdu.edu](mailto:namazi@fdu.edu)), Madison, NJ 07940. *A  $g$ -function and Hermite expansion.* Preliminary report.

We examine weighted  $L^p$  inequalities and weak  $L^1$  inequalities for the gradient-square function

$$g\nabla(f)(x) = \left( \int_0^\infty |\nabla P_t f(x)|^2 t dt \right)^{1/2}$$

associated with the Poisson semigroup  $\{P_t\}_{t>0}$ , where  $\nabla$  is a Hermite-type gradient and  $\{P_t\}_{t>0}$  is defined in terms of spectral decomposition related to Hermite functions. (Received September 19, 2007)