1085-82-152 **Jogia Bandyopadhyay***, Mathematical Sciences Building, One Shields Avenue, Davis, CA 95616. *Optimal Concentration for SU(1, 1) Coherent State Transforms and An Analogue of the Lieb-Wehrl Conjecture for SU(1, 1).*

We derive a lower bound for the Wehrl entropy in the setting of SU(1, 1). For asymptotically high values of the quantum number k, this bound coincides with the analogue of the Lieb-Wehrl conjecture for SU(1, 1) coherent states. The bound on the entropy is proved via a sharp norm bound. The norm bound is deduced by using an interesting identity for Fisher information of SU(1, 1) coherent state transforms on the hyperbolic plane $\mathbb{H}^2$ and a new family of sharp Sobolev inequalities on $\mathbb{H}^2$. To prove the sharpness of our Sobolev inequality, we need to first prove a uniqueness theorem for solutions of a semi-linear Poisson equation (which is actually the Euler-Lagrange equation for the variational problem associated with our sharp Sobolev inequality) on $\mathbb{H}^2$. Uniqueness theorems proved for similar semi-linear equations in the past do not apply here and the new features of our proof are of independent interest, as are some of the consequences we derive from the new family of Sobolev inequalities. (Received September 07, 2012)