

1072-47-52

Lewis A Coburn* (lcoburn@buffalo.edu). *Berezin transform and Weyl-type unitary operators on the Bergman space.*

For \mathbf{D} the open complex unit disc with normalized area measure, we consider the Bergman space $L_a^2(\mathbf{D})$ of square-integrable holomorphic functions on \mathbf{D} . Induced by the group $Aut(\mathbf{D})$ of biholomorphic automorphisms of \mathbf{D} , there is a standard family of Weyl-type unitary operators on $L_a^2(\mathbf{D})$. For all bounded operators X on $L_a^2(\mathbf{D})$, the Berezin transform \tilde{X} is a smooth, bounded function on \mathbf{D} . The range of the mapping $Ber: X \rightarrow \tilde{X}$ is invariant under $Aut(\mathbf{D})$. The “mixing properties” of the elements of $Aut(\mathbf{D})$ are visible in the Berezin transforms of the induced unitary operators. Computations involving these operators show that there is no real number $M > 0$ with $M\|\tilde{X}\|_\infty \geq \|X\|$ for all bounded operators X , and are used to check other possible properties of \tilde{X} . Extensions to other domains are discussed. (Received June 13, 2011)