Michel DUFLO

Weyl's functional calculus and equivariant differential forms

Abstract. Let $A_1, A_2, ..., A_d$ be d Hermitian matrices of size n. Weyl's functional calculus is a compactly supported distribution W on $\mathbb{R}^d$ which associates to a smooth function f of $d$variables a matrix $W(f) := f(A_1, ..., A_d)$. Forty years ago, Edward Nelson gave a formula for W, explicitly describing it as the derivative of a probability measure on $\mathbb{R}^d$ supported on the joint numerical range of the A_i. We show how this formula fits in the setting of Hamiltonian geometry and equivariant differential forms.