1049-32-43 **John Wermer***, Department of Mathematics, Brown University, Providence, RI. *A Cauchy-Riemann equation for generalized analytic functions.*

In (1),“Generalized Analytic Functions”,TAMS 81 (1956), R.Arens and I. Singer studied the following generalization of the disk algebra.T^2 is the 2-torus and α is a positive irrational number .A_α is the algebra of all continuous functions on T^2 with Fourier coefficients in the half-plane :$n + m\alpha| \geq 0$.The maximal ideal space of A_α identifies with the set M of $(z,w)||w| = |z|^\alpha, |z| \leq 1$ in C^2. Helson and Lowdenslager in 1959 developed a rich theory of A_α.Define the differential operator $X = \bar{z}\delta_{\bar{z}} + \alpha\bar{w}\delta_{\bar{w}}$ on C^2. X is well-defined on the 3-manifold M. $(0,0)$. Using results in (1), we prove Theorem: A_α consists of all f in $C(T^2)$ which have a continuous extension F to M such that $X(F) = 0$ in the sense of distributions on M minus $(0,0)$. (Received February 12, 2009)