1077-30-1564 **G Wang*** (gwang@math.fsu.edu) and **Craig Nolder**. *Fourier multipliers and Dirac operators.*
We use Fourier multipliers of the Dirac operator and Cauchy transformation to obtain composition theorems and integral representations. In particular we calculate the multiplier of the Π-operator. This operator is the hypercomplex version of the beurling Ahlfors transform in the plane. The hypercomplex Beurling Ahlfors transform is a direct generalization of the Beurling Ahlfors transform and reduces to this operator in the plane. We give an integral representation for iterations of the hypercomplex Beurling Ahlfors transform and we present here a bound for the L^p norm. Such L^p bounds are essential for applications of the Beurling Ahlfors transform in the plane. The upper bound presented here is $m(p^\star - 1)$ where m is the dimension of the Euclidean space on which the function is defined, $1 < p < \infty$ and $p^\star = max(p, \frac{p}{p-1})$. We use recent estimates on second order Riesz transforms to obtain this result. Using the Fourier multiplier of the Π operator we express this operator as a hypercomplex linear combination of second order Riesz transforms. (Received September 20, 2011)