

1098-32-169

**Jeffrey S Case\***, [jscase@math.princeton.edu](mailto:jscase@math.princeton.edu), and **Paul Yang**. *A Paneitz-type operator for CR pluriharmonic functions.*

We introduce a new fourth order CR invariant operator on pluriharmonic functions on a three-dimensional CR manifold, generalizing to the abstract setting the operator discovered by Branson, Fontana and Morpurgo. For a distinguished class of contact forms, all of which have vanishing Hirachi- $Q$  curvature, these operators determine a new scalar invariant with properties analogous to the usual  $Q$ -curvature. We discuss how these are similar to the (conformal) Paneitz operator and  $Q$ -curvature of a four-manifold, and describe its relation to some problems for three-dimensional CR manifolds. (Received January 24, 2014)