1003-Z1-29 **Jeffery D McNeal*** (`mcneal@math.ohio-state.edu`), Department of Mathematics, Ohio State University, Columbus, OH 43210. *The order of contact of a holomorphic ideal. Blow-up and finiteness of testing set.*

This is joint work with Andras Nemethi. We describe a method for computing the order of contact of a holomorphic ideal in $\mathbb{C}^n$. The order of contact of a holomorphic ideal is an invariant which measures the one-dimensional order of vanishing of the elements in the ideal, and plays an important role in establishing certain L^2 Sobolev estimates for the Cauchy-Riemann equations on domains in $\mathbb{C}^n$.

The definition of the order of contact involves an infinite dimensional space of analytic curves and is impossible to use for computational purposes. We show how this invariant may be computed using only a finite family of curves. These curves are chosen after looking at the resolution graph of the variety associated to the ideal and picking out particular branches inside the resolution graph. We will describe the resolution of singularities result we need in elementary terms, state the "resolution package" we extract from the resolution graph in a simple way, and then show how our finiteness result follows easily from the resolution package. (Received June 14, 2004)