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**Michael A. Tychonievich\*** (tycho@math.osu.edu), 629 Math Tower, 231 West 18th Avenue, Columbus, OH 43210. *The Set of Restricted Complex Exponents for Expansions of the Reals*. Preliminary report.

We introduce the set of definable restricted complex powers for o-minimal expansions of the real field. We calculate it explicitly for structures of the form  $(\overline{\mathbb{R}}, (x^z \upharpoonright [1, 2])_{z \in Z})$  where  $Z$  is a subset of the field of complex numbers. For many of these structures, we produce examples of holomorphic functions that are definable and yet not semialgebraic. (Received September 22, 2010)