

1147-32-809

**Ilya Kossovskiy\*** (ilyakos@gmail.com). *Normal form for a real hypersurface at an infinite type point and applications.*

Holomorphic classification of real submanifolds in complex space is one of the central goals in complex analysis in several variables. This classification is well understood and approaches are well developed for submanifolds satisfying certain bracket generating conditions of Hormander type, while very little is known in more degenerate setting. In particular, somewhat surprisingly, the classification problem for hypersurfaces in complex 2-space formulated by H.Poincare and know as "Problem local" is still open. The class of hypersurfaces bringing conceptual difficulties here is the class of (Levi-nonflat) infinite type hypersurfaces. In our joint work with Ebenfelt and Lamel, we develop the classification theory for infinite type hypersurfaces in  $\mathbb{C}^2$ . We do so by providing a normal form for such hypersurfaces. We extensively use the newly developed approach of Associated Differential Equations. We show applications of the normal form for understanding the geometry of Chern-Moser chains in a real hypersurface near an infinite type point. (Received January 29, 2019)