Summability in ultraholomorphic classes

Javier Sanz

July 16, 2012

Abstract

A new construction of linear continuous right inverses for the asymptotic Borel map is provided in the framework of general Carleman ultraholomorphic classes in narrow sectors. This was already achieved by V. Thilliez by means of Whitney extension results, but our procedure closely resembles the classical one in the case of Gevrey classes, since it makes use of a suitable truncated integral, Laplace-like operator with a flat kernel. This indicates the way for the introduction of a concept of summability which generalizes $k-$summability theory as developed by J. P. Ramis, and which is inspired by the study of general summability methods by W. Balser. Some applications to the analysis of formal power series solutions of some classes of partial differential equations will be discussed.
Joint work with A. Lastra and S. Malek.