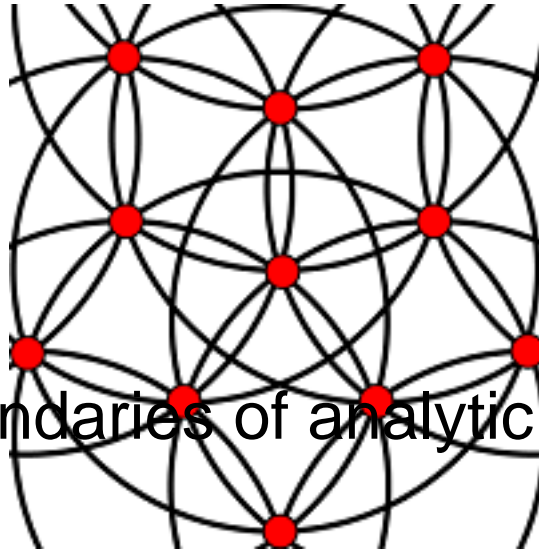


CSASC 2013



Contribution ID : 4

Boundaries of analytic sets

Content :

We show that a compact, connected, oriented, CR manifold of hypersurface type in \mathbb{C}^n is extended to a "strip" complex variety Y in \mathbb{C}^n . The extension is obtained as a union of discs attached to M at points of local minimality (Trepreau-Tumanov); this extension "propagates" to points where minimality fails by a generalized Hanges-Treves theorem on account of the fact that these points are connected to the formers by a CR orbit. From a variant of the Hans Lewy theorem, we know that analytic sets extend across pseudoconcave boundaries, and from the Sperling-Rothstein theorem the different "patch extensions" glue up to a complex variety W sheeted over \mathbb{C}^n . Altogether, we obtain the extension of M to a complex variety W , that is, the Harvey-Lawson theorem.

If M is pseudoconvex, then W encounters Y before touching its boundary M ; in particular, W is smooth in a neighborhood of M . (If, in addition, M is contained in a pseudoconvex boundary to which it is not complex tangential), then in fact W belongs to \mathbb{C}^n .) Once one realizes M as a boundary taken in a smooth way, one gets the answer to a conjecture by Kohn: the range of the $\bar{\partial}$ tangential to M is closed.

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