
BEATRIZ MOLINA-SAMPER, UNIVERSITY OF VALLADOLID

Combinatorial Maximal Contact Theory

Hironaka's characteristic polyhedra represent the combinatorial steps in almost any procedure of reduction of singularities. This is implicit in Hironaka's formulation of the polyhedra game. The main arguments to solve the combinatorial part for the reduction of singularities are contained in Spivakovsky's solution to Hironaka's game. On the other hand the globalization of the strategies as well as the geometrical structure of the induction to obtain reduction of singularities are the main ideas in the Maximal Contact Theory, developed by Hironaka, Aroca and Vicente for the case of complex analytic spaces. We present here a way of considering the combinatorial problems in terms of Systems of Newton Polyhedra and Characteristic Polyhedra. In this formulation, the combinatorial features of the problems are reflected without losing the global aspects. We give a solution of the problem following the classical lines and in particular we need to project the problem over a "Maximal Contact Support Fabric" that plays the role of the maximal contact variety. This combinatorial structure is free of restrictions on the characteristic and can be applied simultaneously to varieties, foliations, vector fields and differential forms among other possible objects.