

Stefan Papadima (`Stefan.Papadima@imar.ro`), Institute of Mathematics of the Academy, 70700 Bucharest, Romania, and **Alexander I. Suci*** (`alexsuciu@ne`) Department of Mathematics, Northeastern University, Boston, MA 02115. *Chen Lie algebras and combinatorics of arrangements*.

Using Malcev completion techniques, we show that the rational Chen Lie algebra of the fundamental complement of a complex hyperplane arrangement is isomorphic to the rational holonomy Lie algebra modulo the second derived subalgebra. Consequently, the rational Chen Lie algebra is combinatorially determined. We also show that the Hilbert series of this (graded) Lie algebra is determined by the Hilbert series of the line arrangement invariant of the arrangement, viewed as a module over the polynomial ring in variables corresponding to the lines.