Curriculum Vitae and research subjects

Carlo VIOLA

Born in Rome, Italy, April 11, 1943.

Assistant professor at the University of Pisa since November 1970.
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Carlo Viola began his research activity in 1970. He is mainly interested in various aspects of analytic as well as of geometric number theory, and especially in diophantine approximation. In the decade 1970-1980 he was active in research on several problems in analytic number theory, with contributions to the theory of diophantine equations, sieve methods, mean values of Dirichlet L-functions. Jointly with M. Forti he developed methods of functional analysis in the study of large sieve estimates, with applications to density estimates for the zeros of L-functions (see [2] and [3] in the list of publications). In the 1980s he worked mainly on effective diophantine approximation to algebraic numbers. In this field he introduced new multiplicity estimates based on local-to-global analysis of singularities of highly reducible algebraic curves (see [12]). More recently, he worked on polynomial-exponential diophantine equations, on factorization of lacunary polynomials ([21] and [23]), on the vanishing multiplicity of linear recurrence sequences ([26]) and on diophantine approximation to values of hypergeometric functions, to logarithms of algebraic numbers ([22], [28], [40] and [43]) and to dilogarithms of rational numbers ([33], [50] and [52]). In 1996 he introduced, jointly with G. Rhin, a new algebraic method in the study of arithmetical properties of values of the Riemann zeta-function at positive integers, consisting in the action of groups of birational transformations and of permutation groups on multiple Euler-type integrals related to the values of the zeta-function ([20] and [27]). Such permutation groups are since known as the Rhin-Viola groups (see, e.g., S. Fischler, *Groupes de Rhin-Viola et intégrales multiples*, J. Théor. Nombres Bordeaux **15** (2003), 479-534). Further applications of the Rhin-Viola groups are given in the papers [33], [50] and [52]. In the papers [43], [50] and [52] Carlo Viola also applied the saddle-point method in $\mathbf{C}^2$ to determine the asymptotic behaviour of double complex integrals of rational functions related to linear forms in logarithms and dilogarithms of suitable algebraic numbers. In the paper [53], jointly with F. Pinna, he proved a new version of the saddle-point method in $\mathbf{C}^N$ for any $N \geq 2$, with applications to the asymptotic analysis of multiple integrals of Airy's type.

    In 1997 Carlo Viola was the editor of a volume [24] on the arithmetic of elliptic curves with papers by J. Coates, R. Greenberg, K. A. Ribet and K. Rubin, and in 2002 he was co-editor with A. Perelli of a volume [34] on analytic number theory with papers by J. B. Friedlander, D. R. Heath-Brown, H. Iwaniec and

J. Kaczorowski, both published in the C.I.M.E. subseries of the Springer Lecture Notes in Mathematics. He was a member of the Institute for Advanced Study at Princeton in the academic year 1980-81 and a visiting professor at Columbia University in New York in 1987-88. Since 2002, he is a member of the Academy of Sciences in Turin. He received numerous invitations for research periods and for conferences and workshops in France, USA, Germany, Great Britain, Poland, Sweden, Hungary, Japan, Canada, Russia, etc.