

Preface

The first examples of Lie superalgebras appear in algebraic topology in the late 40's (the Whitehead product on homotopy groups is a Lie superalgebra bracket) and in the context of deformation theory of complex structures (Nijenhuis, Frölicher and Nijenhuis) in the late 50's. Shortly after, Gerstenhaber, in a series of fundamental papers, shed new light on the role of Lie superalgebras in his theory of deformation of rings and algebras, while Spencer and his collaborators developed applications to pseudogroup structures on manifolds.

A renewed interest in Lie superalgebras came from Physics in the early 70's: many examples arise naturally as “supersymmetries” for quantum field theories, e.g. in the Wess-Zumino model¹. It was however Kac's landmark Advances paper² which established the study of Lie superalgebras as a branch of Algebra in its own right.

Since then the subject has received dramatic developments, so that up to now more than 900 papers having “Lie superalgebra” in their title can be counted in the MathSciNet.

This volume originates from “Lie Superalgebras”, held in Roma, Istituto Nazionale di Alta Matematica “Francesco Severi”, December 14-19, 2012.

It consists of original papers and/or extended expositions of the talks delivered at the conference.

We believe that the contributions, kindly offered by the invited speakers, clearly illustrate one of the most remarkable features of the theory of Lie superalgebras which is, the astonishing range of its connections with other branches of Mathematics and Mathematical Physics.

It is our pleasure to thank Professor Vincenzo Ancona, President of Indam, the Scientific Committee and the entire staff of Indam, for allowing us the opportunity to gather so many specialists in such a highly stimulating meeting.

¹ A thorough discussion of the role of Lie superalgebras up to the mid 70's can be found in Corwin-Ne'eman-Sternberg, *Rev. Mod. Ph.*, **47**, 575–603 (1975).

² Kac, V.G.: Lie superalgebras. *Advances in Math.* **26**(1) 8–96 (1977).

By happy coincidence, the publication of this volume coincides with Victor Kac's seventieth birthday. It would be hard to believe that the theory of Lie superalgebras would have progressed so far without his contribution in the field. With the consent of all contributing authors, we would like to dedicate this volume to him.

Rehovot and Roma
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