Stefano Capparelli

Curriculum vitae

Current address: Dipartimento di Scienze di Base e Applicate per l'Ingegneria – Sapienza Università di Roma, Via A. Scarpa 16, 00161, Roma

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Current academic position: Associate Professor of Geometry, SSD MAT/03, since November 1, 1999.

Previous positions (in reverse chronological order):

1992-99 Ricercatore, SSD MAT/02, Dipartimento di Matematica, Facoltà di Scienze, Sapienza Università di Roma

1991-92 Adjunct professor, University of Utah, Salt Lake City, Utah, USA

1988-90 J.W. Gibbs Instructor, Yale University, New Haven, Connecticut, USA

1987-88 Alfred P. Sloan Foundation Doctoral Dissertation Fellowship, Rutgers University, New Jersey, USA

1985-87 Teaching Assistant, Rutgers University, New Jersey, USA

1984-85 Servizio Militare di Leva

1981-84 Rutgers University Fellowship for Graduate Studies, Rutgers University, New Jersey, USA

Education (in reverse chronological order):

1988 Ph.D. in Mathematics, Rutgers University, New Jersey, USA

1981 Laurea in Matematica, 110 e lode, Sapienza Università di Roma.

Research Interests: Lie Theory, Vertex Operator Theory, Combinatorics, Integer Partitions, Combinatorics of Orthogonal Polynomials.

Referee and reviewer activity:

Served as reviewer for the National Security Agency (USA), FIRB (MIUR-Italy), Croatian Ministry of Science.

Reviewer for the American Mathematical Society, Zentralblatt fur Mathematik,

Referee for (among others)

- Inventiones Mathematicae
- Journal of Algebra
- Advances in Mathematics
- Memoirs of the American Mathematical Society
- Mathematische Zeitschrift
- Journal of Algebra, Number Theory and applications
- Transaction of the American Mathematical Society
- Journal de Théorie des Nombres de Bordeaux
- Communications in Contemporary Mathematics

Teaching:

Currently teaching first year, first semester course: Geometria, and third year Discrete Mathematics, both for C.L. Ingegneria Elettronica e Ingegneria delle Comunicazioni, Sapienza.

Previously taught also:

- Algebra I, Algebra II, Geometria e Algebra, (Sapienza)
- Analisi I, Analisi II, (Sapienza)
- Istituzioni di Matematica, (Roma Tre)
- Algebra, Precalculus, Finite Mathematics, Intro to Statistics, Intro to University Mathematics, (USA)
- First, Second and Third semester Calculus (Yale, USA)
- Linear Algebra (Rutgers, USA)

Doctoral Courses

- Introduction to Vertex Operators (Yale University)
- Algebraic Conformal Field Theory (Yale University)
- Introduzione alla teoria delle Algebre di Lie (Sapienza)

Research Funding:

- Leader of several research projects funded by Sapienza on Combinatorics and Lie Theory
- Participant in several PRIN
- CNR grants for research abroad (USA)
- National Science Foundation Grants (USA)

Recent Conferences:
- Invited to Trends in Graph theory and Combinatorics: Politecnico di Milano (26-27 Jan 2017)
- Co-organizer of Discretaly – A workshop in Discrete Mathematics, Sapienza, Roma, 1-2 Feb 2018
- Invited to Vertex algebras and related topics, Zagreb (Croatia), 24-27 May 2018

Selected publications:

1. Widened derangements and generalized Laguerre polynomials, (with A. Del Fra, V. Pepe) to appear in Ramanujan Journal (2018)

2. A generalization of the "Problème des Rencontres", (with M.M. Ferrari, E. Munarini, N. Zagaglia Salvi) Journal of Integer Sequences, Vol 21 (2018), Article 18.2.8.

3. An application of orthogonal polynomials to the study of some algebraic integers, (with A. Del Fra) submitted

4. Root power sums and Chebyshev polynomials, to appear in Rocky Mountain J. Math, (2018)

5. On symplectic semifield spreads of PG(5,q2), q even, (with V. Pepe) J. Alg. Comb., 46 (2), 275-286.

6. Dyck paths, Motzkin paths, and the binomial transform, J. Integer Sequences, (2015) vol 18, p.1-20, (with A. Del Fra)

7. Some results on Dyck paths and Motzkin paths, arXiv 1505.01961

8. Some results on a class of polynomials related to convolutions of the Catalan sequence, (2014) Med. J. Math, Vol. 11, 255-271 (with P. Maroscia)

9. On two sequences of orthogonal polynomials relatd to Jordan blocks, (2013) Med. J. Math, Vol. 10, 1609-1630 (with P. Maroscia)

10. A collection of results on Hamiltonian cycle systems with a nice automorphism group, (2013) Electronic Notes Discrete Math 40, 245-252 (with M. Buratti, F. Merola, G. Rinaldi, T. Traetta)

11. Alcuni problem di matematica discreta, Progetto Alice, (2012) vol. xiii, 379-409, (with P. Maroscia)

12. Cyclic Hamiltonian cycle systems of the lambda-fold complete and cocktail party graphs. (2010) European J. Combinatorics, vol. 31, 1484-1496 (with M. Buratti, A. Del Fra)

13. Hamiltonian paths in the complete graph with edge-lengths 1,2,3. (2010) Electronic J. Combinatorics, vol. 17, 1-13 (with A. Del Fra)

14. On the span of polynomials with integer coefficients, (2010) Math. Comp. vol. 79, 967-981, (with A. Del Fra, C. Sciò)

15. The Rogers-Selberg recursion, the Gordon-Andrews identities and intertwining operators. (2006) Ramanujan J. vol. 12, 379-397. (with J. Lepowsky, A. Milas)

16. On some theorems of Hirschhorn, (2004) Comm. Algebra, vol 32, 629-635,

17. Calcolo della funzione di partizione di Kostant per algebra di rango 2. Boll. UMI, B, vol. 6, 89-110

18. The Rogers-Ramanujan recursion and intertwining operators, Comm. Contemp. Math., (2003) vol. 5, 947-966 . (with J. Lepowsky, A. Milas)

19. Representations of level 5 for a twisted affine Lie algebra and combinatorial identities, Functional Analysis VII, vol. 46 105-110, Dubrovnik 2001.

20. A construction of the level 3 modules for the affine Lie algebra A22 and a new combinatorial identity of the Rogers-Ramanujan type, (1996) Trans. Amer. Math. Soc., vol 348, 481-501

21. A combinatorial proof of a partition identity related to level 3 standard modules for an affine Lie algebra, (1995) Comm. Algebra, vol. 23, 2959-2969.

22. Lie algebra representations, partition identities and q-trinomial coefficients, (1995) Rendiconti Seminario Matematico, vol 53, 231-243

23. On some representations of twisted affine Lie algebras and combinatorial identities, (1993), Journal of Algebra, vol. 154, 335-355.

24. Elements of the annihilating ideal of a standard module, (1992) Journal of Algebra, vol 145, 32-54.

25. Le equazioni di Knizhnik-Zamolodchikov e le algebra di operatori di vertice, (1992) Rendiconti di Matematica e delle sue applicazioni, vol. 12, 555-573.

26. Relations for generating functions associated to an infinite dimensional Lie algebra.(1992) Boll. UMI, B, vol. 6B 733-793

27. On vertex operator algebras, (1991) Boll UMIN, B, vol. 5B, 787-800

28. The Jordan canonical form in some theta-groups, (1991) Rendiconti di Matematica e delle sue applicazioni, vol. 11, 777-808

29. Vertex Operator relations for affine algebras and combinatorial identities, (1988) Ph. D. Dissertation, Rutgers University, New Jersey, USA

Other Publications

1. Teoria elementare delle Algebre di Lie, Quaderni di Dottorato, Memomat
2. Appunti per un secondo corso di algebra lineare, Quaderno Memomat
3. Appunti di Matematica Discreta, Esculapio 2016
4. Geometria, (with A. Del Fra) Esculapio 2015