

## Curriculum Vitae

Consuelo Martínez López

### Academic Position

- full Profesor, University of Oviedo (SPAIN)

### Academic Degrees

- Degree in Mathematics, University of Zaragoza, 1977.
- Ph. Degree in Mathematics, University of Zaragoza 1980.

### CV Summary

My research activity belongs to the area of Algebra, where I have been always working. My main interest area includes Group theory and Nonassociative Algebras. In Group Theory I have made contributions to the area of infinite groups, usually locally finite groups and problems around the Restricted Burnside Problem, with strong connections with the theory of Non-associative Algebras. I have also worked in Non-associative algebras related to Physics (Lie admissible or Jordan algebras) or to Biology (Genetic and Bernstein algebras). An important part of my activity in the last 15 years moves around Superalgebras, structure and representations, both in Jordan and Lie cases and in finite and infinite dimension. A relevant part of this activity has been made together with Efim Zelmanov, with whom I have a permanent collaboration since 1992. In the last two decades I have contributions in Information Theory, looking for applications of algebraic structures in Error Correcting Codes and Cryptography. I have supervised several thesis in this lines.

### Conferences, Seminars and Research stays

I have been invited to give talks in different universities: Paris VII, Queen University Belfast, University College Dublin, The Hebrew University of Jerusalem, Rutgers University, Ottawa University, Hong Kong University, National Seoul University, CUNY (City University of New York) or Stevens Institute of Technology, among others. I have been invited to give a talk, a plenary talk or an invited talk in many international congresses, the last one in Buenos Aires, where I gave the Lluís Santaló conference.

I have stayed in different research centers as MSRI (Berkeley), Yale University (during the academic year 95-96), Chicago University or KIAS (Korean Institute of Advanced Studies in Seoul) that I visit regularly (every year) in the last twenty years to collaborate with E. Zelmanov.

### Research grants and projects

Our group has got financial support from the beginning without interruption. In the last years I have been IP (Main Researcher) in national projects and projects supported by the Local Government of Asturias, in total more than 12. I have participated in several national networks: Group theory, Noncommutative Algebra or Mathematics in Communications.

I got a grant of the Spanish Ministry of Education to spend a sabbatical year at Yale University (in the course 1995-96).

I was member of the Scientific Committee of the Consolider Project in Mathematics during the whole period of it.

## Selected publications

- C. Martínez, “The ring of fractions of a Jordan algebra”, *Algebra* 237 (2001), no. 2, 798-812.
- C. Martínez and E. Zelmanov, “ Simple finite-dimensional Jordan superalgebras of prime characteristic”, *Journal of Algebra* 237 (2001), 575-629.
- V. Kac, C. Martínez and E. Zelmanov, “Graded simple Jordan superalgebras of growth one”, *Mem. Amer. Math. Soc.* 150 (2001), no. 711, 140 pp.
- C. Martínez and E. Zelmanov, “Lie Superálgebras graded by  $P(n)$  and  $Q(n)$ ”, *Proc. Nat. Acad. Sciences* 100 n° 14, 8130- 8137, 2003.
- G. Benkart, A. Elduque C. Martínez, “Lie superalgebras graded by  $A(n,n)$ ”, *J. Reine Angew Math.* 573, 139 – 256, 2004.
- C. Martínez, “Z-graded Lie algebras of growth one”, *J. of Lie Theory* 15, n.2, 505- 520, 2005.
- C. Martínez and E. Zelmanov, “Unital bimodules over the simple Jordan superalgebra  $D(t)$ ”, *Transactions of the AMS* 358, n.8, 3637-3649, 2006.
- Santos González , C. Martínez and I. F. Rúa, “Symplectic Spread based Generalized Kerdock Codes”, *Designs, Codes and Cryptography* 42 (2) 213 – 226, 2007.
- C. Martínez and E. Zelmanov, “Representation Theory of Jordan Superalgebras I”, *Transactions of the AMS* 362 n. 2 , 815 – 846, 2010.
- C. Martínez, I. Shestakov and E. Zelmanov, “Unital bimodules over  $Q(n)$  and  $P(n)$ ” *Transactions of the AMS* 362 n. 4, 2037 - 2051, 2010.
- E. Couselo, S. González, V. Markov, C. Martínez and A. Nechaev, “ Some constructions of linearly optimal group codes”. *Linear Algebra and its Applications* 433 (2), 356-364, 2010.
- Markus Grassl, C. Martínez and A. P. Nicolas, “Fully ramified characters and Clifford codes”. *Communications in Algebra* 39(1), 100-115, 2011.
- Elisabete Barreiro, Alberto Elduque and Consuelo Martínez, “Derivations of the Cheng-Kac Jordan superalgebras”, *J. of Algebra* 338 (1), 144-156, 2011.
- García-Pillado, C; González, S., Martínez, C.; Markov, V.; Nechaev, A.; “Group codes over non abelian groups”, *J. Algebra App.* 12 (2013), no. 7, 20 pp.
- Couselo, E.; González, S; Markov, V.; Martínez, C.; Nechaev, A.; “Ideal representations of Ree-Solomon and Reed-Muller codes”, *Algebra and Logic* 51 (2012), no. 3, 195-212.
- González, S; Huguet, Ll.; Martínez, C.; Villafañe, H., “Discrete logarithm like problems and linear recurring sequences”, *Adv. Math. Commun.* 7 (2013), no. 2, 187-195.
- C. Martínez and E. Zelmanov, “Irreducible representations of the exceptional Cheng-Kac superalgebra”, *Transactions of the AMS* 366, no. 11, 5853-5876 , 2014.
- C. García Pillado, S. González, V. Markov, C. Martínez and A. Nechaev, “Examples of Non-abelian group codes”, *Advances in Mathematics of Communications* 10, no. 1, 1-10, 2016.
- C. Martínez and E. Zelmanov, “On Lie rings of torsion groups”, *Bull. Math. Sciences* 6, no. 3, 2016, 371-277.

- Martínez Carracedo, Jorge and Consuelo Martínez, “A computational approach to verbal width in alternating groups”, Computational Mathematics, Numerical Analysis and Applications, 241-244, SEMA-SIMAI Springer Ser., 13, Springer, Cham, 2017.
- C. Martínez, “Algebra y Supersimetría”, Gaceta R. Soc. Mat. Exp. 20, 2017, 299-416.
- C. Martínez, “Ellipticity of words”, J. of Algebra 500, 2018, 242-252.

### **Supervision of research students**

I have supervised 16 Doctoral Theses, 4 Master theses and several Degree theses and research academic papers.

### **Participation in Committees**

- Member of the International Algebra panel and the Local Program Committee of the ICM 2006,
- Member and Secretary of the Scientific Committee of the Royal Spanish Mathematical Society,
- Member of the Scientific Advisory Board of the CRM (Centre de Recerca Matemàtica).
- President of the CNEAI committee 1 (Physics and Mathematics) in the courses 2016-17 and 2017-18.
- Member of the External Advisory Board of the IMAT of Santiago de Compostela.

### **Prizes**

Awarded in the third edition of the Julio Pélaez prize of the Tatiana Pérez de Guzmán el Bueno Foundation in 2018.