

Curriculum Vitae (max 2 pages): Edgar Martínez Moro

1) Education: B.A. and M.A. in Mathematics 1995 (University of Valladolid), PhD. Mathematics 2001 (University of Valladolid)

2) Actual position: Profesor Titular de Universidad (Associate Professor), Applied Mathematics Department, (University of Valladolid, Spain)

3) Main Publications:

3.1) Journal articles: (all peer-reviewed)

- E. Martínez-Moro. Properties of Commutative Association Schemes derived by FGLM Techniques. *International Journal of Algebra and Computation*. vol. 12 n. 6 (2002) pp. 849–865.
- E. Martínez-Moro, Roberto Canogar McKenzie. On the structure of multipliers of Z_2 . *International Journal of Mathematics and Mathematical Sciences*. vol. 15 (2003) pp. 935–946.
- E. Martínez-Moro. Regular Representations of Finite-dimensional Separable Semisimple Algebras and Gröbner bases. *Journal of Symbolic Computation*. Volume 37, Issue 5, Pages 575–587 (May 2004)
- E. Martínez-Moro, J. Mozo-Fenández, C. Munuera. Compounding secret sharing schemes. *Australasian Journal of Combinatorics*. Volume 30, pp. 277–290. Sept. 2004.
- E. Martínez-Moro. A generalization of Niederreiter-Xing's propagation rule and its commutativity with duality. *IEEE Trans. on Inf. Theory*, Volume: 50, Issue: 4 April 2004, pp. 701–702
- M.A. Borges Trenard, M. Borges Quintana, J.A. Castellanos Garzón, E. Martínez-Moro The symmetric group presented by a Gröbner basis. *J. Pure Appl. Algebra* 207 (2006), no. 1, 149–154.
- E. Martínez-Moro, I.F. Rua. Multivariable codes over finite chain rings: serial codes *SIAM J. Discrete Math.* 20 (2006), no. 4, 947–959.
- M.A. Borges Trenard, M. Borges Quintana, E. Martínez-Moro On a Gröbner bases structure associated to linear codes. *Journal of Discrete Mathematics and Cryptography*. 10(2), 151–191, April 2007.
- E. Martínez-Moro, I.F. Rua On repeated-root multivariable codes over a finite chain ring *Designs, Codes and Cryptography*. 45 (2), November, 2007. 219–227
- E. Martínez-Moro. On semisimple algebra codes. *Algebra and Discrete Mathematics*. Number 3. (2007). pp. 99 – 112
- M. Borges-Quintana, M.A. Borges-Trenard, P. Fitzpatrick, E. Martínez-Moro Groebner bases and combinatorics for binary codes. *Appl. Algebra Engrg. Comm. Comput.* vol.19 , no. 5 (2008) pp. 393–411

3.2) Main conference papers: (all peer-reviewed)

- E. Martínez-Moro. Computations on character tables of association schemes. en *Computer Algebra in Scientific Computing*. CASC'99 Editorial: Springer Verlag, Munich 1999.
- E. Martínez-Moro, F. J. Galán Simon, M.A. Borges Trenard, M. Borges Quintana. Combinatorial Structure of Finite Fields with Two Dimensional Modulo Metrics. *Lecture Notes in Computer Science*. Vol. 1746, 45–55, 1999
- F. J. Galán Simon, E. Martínez-Moro, J. G. Tena Ayuso. Majority Logic Decodable Cyclic Arithmetic Modular AN-Codes in 1,2 and L Steps. *Lecture Notes in Computer Science*. Vol. 2260, 128–137, 2001
- M. Borges-Quintana, M.A. Borges-Trenard, E. Martínez-Moro On the Use of Gröbner Bases for Computing the Structure of Finite Abelian Groups *Lecture Notes in Computer Science* Volume 3718, 52–64, 2005
- M. Borges-Quintana, M.A. Borges-Trenard, E. Martínez-Moro A General Framework for Applying FGLM Techniques to Linear Codes *Lecture Notes in Computer Science* Volume 3857 , 76–86, 2006
- M. Borges-Quintana, M.A. Borges-Trenard, I. Marquez Corbella, E. Martínez-Moro An Algebraic View to Gradient Descent Decoding. Accepted at *IEEE Information Theory Workshop*, Dublin 30/8 -- 3/9, 2010

3.3) Research monographs:

- Edgar Martínez-Moro, Carlos Munuera, Diego Ruano. Bases de Gröbner: aplicaciones a la codificación algebraica. Instituto Venezolano de investigaciones científicas. 125 páginas, Sep. 2007. ISBN 978-980-261-087-7. (In Spanish)

3.4) Book chapters:

- M. Borges-Quintana, M.A. Borges-Trenard, E. Martínez-Moro A Gröbner Representation for Linear Codes. In *Advances in Coding Theory and Cryptography*. pp. 17–32 Word-Scientific , 2007.
- Edgar Martínez-Moro, D. Ruano. Toric codes. In *Advances of Algebraic Geometry Codes*. pp. 295–322 Word-Scientific , October 2008.

4) Editorial work:

- Reviewer for *American Mathematical Society Reviews*.
- Editor with C. Munuera and D. Ruano of the book *Advances of Algebraic Geometry Codes*. Word-Scientific , October 2008.

- Guest editor of the Special Issue on Algebraic Coding Theory and Applications. Journal of Symbolic Computation, Volume 45, Issue 7, Pages 721-824 (July 2010)

5) Journal and research projects referee:

- Referee for Journal of Discrete Algorithms, Communication in Algebra, Applicable Algebra in Engineering, Communication and Computing and SIAM Journal on Computing, Journal of Symbolic Computation.
- Referee for the volume Gröbner basis, coding and cryptography Eds. M. Sala, T. Mora, L. Perret, S. Sakata, C. Traverso, Springer Verlag (2009)
- Referee for the National Security Agency-American Mathematical Society Mathematical Sciences Program Grants (2010).

6) Research grants:

- PI role: *Structure of additive monoids and applications*. AEI. PCI Scientific Research Spain-Latin America A/7445/07 Dates: 1/1/2008 - 31/12/2008. 4450 €
- PI role: *Applications, combinatorics and effective computation in additive monoids*. AEI. PCI Scientific Research Spain-Latin America A/016959/08 Dates: 1/1/2009 - 31/12/2009. 7260 €
- He has been involved as team member of **14 projects and grants** (regional, national and european) since 1998. Last ones is: Algebraic Geometry of Singularities, Computing and Information Spanish Research Council Plan I+D+i, MTM2007-64704. Dates: 1/1/2008 - 31/12/2012. PI: Antonio Campillo (Universidad de Valladolid). Team of 23 researches. 367500 €

7) Visits to foreign institutions: Departamento de Matemáticas de la Universidad de Oriente. Santiago de Cuba, (2001). Department of Mathematics. University College Cork. Cork, Ireland (2002). Boole Centre for Research in Informatics, University College Cork. Cork, Ireland (2004). Centre National de la Recherche Scientifique, Laboratoire I3S (Informatique, signaux et systèmes) Sophia Antipolis. France.(2006).

8) Main organizer of the following events:

- Special Session on Coding Theory and Computer Algebra at the 10th International Conference on Applications of Computer Algebra, Lamar University, Beaumont, Texas, U.S.A. July 2004
- V Spanish Workshop on Discrete Mathematics and Computer Science. (President of the organizing committee) July 2006. External financial support: 12092 €
- Soria Summer School on Computational Mathematics: Algebraic Coding Theory, 2-11 July 2008. External financial support: 19000 € <http://www.ma.uva.es/~s3cm/>
- Special Session on Coding Theory and Computer Algebra at the 14th International Conference on Applications of Computer Algebra, Research Institute on Symbolic Computation, Linz, Austria, July 2008.
- Soria Summer School on Computational Mathematics: Applied Computational Algebraic Geometric Modelling, 13-24 July 2009. External financial support: 22000 € <http://www.singacom.uva.es/oldsite/Actividad/s3cm/s3cm09/>
- Soria Summer School on Computational Mathematics: Algebraic Geometric Modelling in Information Theory, 12-16 July 2010. External financial support: 12000 € <http://www.singacom.uva.es/oldsite/Actividad/s3cm/s3cm10/>

9) Invited talks:

- E. Martínez-Moro. Gröbner bases and Association Schemes: some applications. Invited talk at the special session on coding theory at the Second Irish Conference on the Mathematical Foundations of Computer Science and Technology. Galway, Ireland. July 2002.
- E. Martínez-Moro. Mattson-Solomon transform and Groebner bases: applications to association schemes and codes. Special semester on Gröbner basis. Workshop D1. Gröbner Bases in Cryptography, Coding Theory, and Algebraic Combinatorics. Linz, Austria, May 1-6, 2006.

10) Professional memberships:

- Member of the "Information Theory Society" Institute of Electrical and Electronics Engineers (IEEE) since 1998.
- Member of the "International Association for Cryptologic Research (IACR)" 1997-1999.
- Member of the Spanish Royal Society of Mathematics since 2002.
- Member of the "ACM Special Interest Group on Symbolic and Algebraic Manipulation" since 2004.

11) PhD Advisor:

PhD advisor of Irene Márquez Corbella. PhD work on progress "On minimal codewords of linear codes" under a grant of Spanish Research Ministry.