Curriculum Vitae

Kenza GUENDA

Faculty of Engineering
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Domains of Interest

Algebraic coding theory, cryptography, quantum information theory, DNA computing.

Professional Experience :

- 2011–, Post-doctoral fellow at Faulty of Engineering UVIC, Canada.

- 20014–, Associate Professor at the Faculty of Mathematics USTHB.
- 2010-2014, Assistant Professor the Faculty of Mathematics USTHB.
- Sep. 2007-Feb. 2008, Associate Lecturer at the School of engineering, Algiers.
- 1995-2010, Lecturer at the Faculty of Mathematics USTHB.
- 1992-1993, Teaching assistant at the Faculty of Mathematics USTHB.

Education :

- 2010 : Ph.D. in algebra and number theory, USTHB University of Algiers, Algeria. " Sur l'équivalence des codes."
- 2006 : Master in Mathematical sciences, University of Stellenbosch South-Africa. "On algebraic geometric codes and some related codes". http ://etd.sun.ac.za/bistream/10019/1053/1/Guenda, %20K.pdf
- 2005 : Diploma in Mathematical sciences, African Institute for Mathematical Sciences, South-Africa. "On algebraic geometric codes."
- 1995 : Master in algebra and number theory, USTHB, University of Algiers. "The arithmetical properties of cyclic extensions of degree 9".
- 1992 : BS in algebra and number theory, USTHB, University of Algiers.

Published Articles

- K. Chatouh, K.Guenda, A. Gulliver and L. Noui On some classes of linear codes over $\mathbb{Z}_2\mathbb{Z}_4$ and their covering radii, Journal of Applied Mathematics and Computing, 1-22. 2016.
- A. Kaya, A. Batoul, K. Guenda and B. Yildiz, Formally self-dual codes over $\mathbb{F}_p + v\mathbb{F}_p$, in European journal for pure and applied mathematics, Vol 8, No 1, 2015.
- K. Guenda and T. A. Gulliver, Quantum codes over rings, International Journal of Quantum Information 12(4), May 2014.
- K. Guenda and T. A. Gulliver, New Symmetric and Asymmetric Quantum codes ; in Int. J. Quantum Inf. V 11, (05), August 2013.
- K. Guenda and T. A. Gulliver, Cyclic codes over $F_2 + uF_2$ for DNA codes in Applic. Algebra in Eng., Commun. and Computing. 24 :445459, 2013.
- K. Guenda and T. A. Gulliver, Repeated Root Constacyclic Codes of Length mp^s over $\mathbb{F}_{p^r} + u\mathbb{F}_{p^r} + \ldots + u^{e-1}\mathbb{F}_{p^r}$; J. Appli. Algebra Eng. 2013.
- K. Guenda T. A. Gulliver, On the permutation groups of cyclic codes, J. of Alg. Combinatorics, published online 3 October 2012.
- K. Guenda, T. A. Gulliver and A. Sheikhoeslam. Lexicodes over rings, Design Codes and Cryptography, published online Feb. 2013.
- K. Guenda, New MDS self-dual codes, Finite Fields, Des. Codes Cryp-

tography 62(1) : 31-42, 2012.

- K. Guenda and T. A. Gulliver, MDS and self-dual codes over rings. Finite Fields and Their Applications 18(6) : 1061-1075, 2012.
- K. Guenda, Quantum Duadic and Affine Invariant Codes. International Journal of Quantum Information, 2(1) : 757-775, Feb. 2009.
- K. Guenda, Dimension and Minimum Distance of a Class of BCH Codes. Annales des sciences Mathématiques du Québec, 1 : 57-62, 2008.

Accepted Papers

- Construction of Codes for DNA computing by the Greedy Algorithm, with N. Benneni and A. Gulliver, to appear in Applicable Algebra Eng. Comp. Comm.
- DNA cyclic codes over rings, with N. Benneni and S. Mesnager. to appear in Advances in Mathematics of communications .
- On some constacyclic codes over rings with A. Batoul and A. Gulliver, to appear in Advances in Mathematics of communications .

Publications in Conference Proceedings :

- 2015 Jul. Conference on Finite Fields and Application, $Fq12$ Saratoga, NY, USA "Repeated Root Cyclic Codes".
- 2015 Nov. International Conference on Coding Theory and Crypto-

graphy ; "Secret Sharing Scheme from Codes over rings" with Karima Chatouh, Lemnouar Noui and Aaron Gulliver.

- 2015 Nov. International Conference on Coding Theory and Cryptography ; "DNA codes with optimal thermodynamic and combinatorial properties", Nabil Benneni and Aaron Gulliver
- 2015 Nov. International Conference on Coding Theory and Cryptography ; "New Variant of the GPT cryptosystem based on $(u|u+v)$ construction", with H. Moufek, R. Mahdjoubi and P.L. Cayrel.
- 2015 Nov. International Conference on Coding Theory and Cryptography ; "Isodual codes over finite chain rings" with A. Batoul, N. Aydin and A. Gulliver.
- 2013 Sep. : The Algerian-Turkish International Days on Mathematics 2013, Istanbul, Turkey. coauthors A. Batoul and T. A. Gulliver, " On Self-Dual Cyclic Codes over Finite Principal Ideal Rings ".
- 2013 Sep. : The Algerian-Turkish International Days on Mathematics, Istanbul, Turkey, with T. A. Gulliver, "Quantum codes over rings".
- 2013 Jul. Intern. Sym. Inform. Theory (ISIT2013), Istanbul, coauthors T. A. with Gulliver and P. Solé, " On cyclic DNA codes."
- 2013 Jun. Canadian Discrete and Algorithmic Mathematics Conference (Canadam), St. Jone's, NL. Canada. Coauthor T. A. Gulliver, "The equivalency Problem for Cyclic Combinatorial Objects".
- 2012 Oct. The Algerian-Turkish International Days on Mathematics 2012, Annaba, Algeria. Coauthors A. Batoul and T. A. Gulliver, "Cons-

truction of self-dual and isodual cyclic codes over Finite chain rings".

- 2012 Oct. The Algerian-Turkish International Days on Mathematics 2012, Annaba, Algeria, with A. Batoul and T. A. Gulliver " Repeated roots contacyclic codes over finite chain rings".
- 2012 Oct : The International Colloquium of Algebra and Number Theory, Algiers, Algeria, with A. Batoul and T. A. Gulliver, " On Self-Dual Cyclic Codes over Finite Principal Ideal Rings ".
- 2012 Jul. International Symposium on information Theory ISIT2012, Boston USA. " Self-dual repeated roots cyclic and negacyclic codes over finite fields", with T. A. Gulliver.
- 2012 Jul. International Symposium on information Theory ISIT2012, Boston USA. "Lexicodes over $\mathbb{Z}_4$", with T. A. Gulliver and A. Sheikhoeslam.
- 2008 Nov : International Symposium on Operational Research, Algiers. Algeria. "The factorization step in the list-decoding algorithm", with B. Kadri.

Posters in International Conferences :

- 2016 April. International Workshop on Cryptography and its Application, Oran, Algeria. with N. Zoubir, New Permutation polynomials.
- 2007 Dec : First International Conference on Quantum Error-Correcting Codes, Los Angeles USA.

" Two families of quantum codes derived from cyclic codes."

International Workshops and Conferences :

- Nov. 2012, ICANT2012, Algiers.
- Jul-Aug 2009, Thematic program on quantum information, Fields Institute, Toronto.
- Oct. 2009, Days on Codes and Cryptography, Fréjus, France.
- Nov. 2008, International Symposium on operational research, Algiers.
- Dec. 2007, First international Conference on quantum error-correcting codes, Los Angeles USA.
- Feb. 2005, Workshop on algebraic geometry, Stellenbosch, South-Africa.

Oral Communications in Local seminars :

- 2013 May, On the equivalency problem for codes, SFU, Canada.
- 2009 Dec : Seminar Cryptis, Xlim, Limoges France.
  "Sur l'équivalence des codes".
- 2009 March : Seminar PC12, Xlim, Limoges France.
  "Les codes correcteurs quantiques".
- 2006 March : Seminar of number theory , Stellenbosch, South-Africa.
  "On cyclic codes".

- 2005 Feb : Seminar of AIMS, Cape-town, South Africa.

  "The mathematical aspect of the error correcting codes".

- 2004 April : JPDM, USTHB, Algiers.

  "L'enseignement des mathématiques par l'internet".

- 2003 Oct : Seminar of number theory USTHB, Algiers.

  "The Ideals of Galois".

- 2002 April : JPDM, USTHB, Algiers.

  "Quelques principes pédagogiques pour un bon enseignement".

Services

- **Guest Editor** for the Journal AAECC, 2016.
- **Co-President and organiser** for the following conference : ICCC2015, ACA2015, DANT2016, AMS2017, DAT2017.
- **Reviewer** for the following journals : Design codes and Cryptography, IEEE Trans. Inform. Theory, Intern. J. Information and Coding Theory, Intern. J. Modern Physics B, J. Discrete Algorithms, Intern. J. Quantum Information, J. Appl. Maths. Comp.,....
- **Reviewer** for the following conferences, CWIT13, ISIT2013, ICCC2015, C2SI-Berger2015, ACA2015, ISIT2016, IWCA2016, DAT2017, AMS2017.
- **Examiner for the Ph.D. and master thesis** of the following students :

  Aicha Batoul, Oualid Benamara, Brahim Merabat, USTHB.

  Oussama Noui and Beloucif Assia University of Batna.

Arash Sheikholeslam, University of Victoria.

Student Supervision

- I supervised 1 Ph.D. student (N. Benneni), 6 master students and 20 bachelor students.
- I co-supervised 3 Ph.D. students (O. Benamara, A. Batoul and K. Chatouh).

Book Chapters

- New Variant of the McEliece Cryptosystem,
  with H. Moufek, in Coding Theory and Applications, pp.291-296
- Extending Construction X for Quantum Error-Correcting Codes
  with A. Degwekar and T.A. Gulliver, in Coding Theory and Applications, pp. 141-152.

Languages

- English, French, Arabic.