Biographical summary

Name: Hanifa Zekraoui

Rank: Professor

Position: Research Professor

Department of mathematics and computer science,

Faculty of Exact Sciences and Natural and Life Sciences, Oum El-Bouaghi University

Obtained certificates:

1. Professor (upgraded to the rank of Professor since January 2019) Specialization: Algebra

2. University qualification (upgrading to the rank of Lecturer A since June 2014) Specialization: Algebra

3. PhD in Mathematics (Batna University, July 2011)

4. Master's degree in algebra and number theory (USTHB, June 1993)

5. (DES). Certificate of Higher Education, Specialization: Algebra (Annaba University, June 1991).

6. Baccalaureate degree, specialization: Mathematics (June 1987)

Summary of educational and scientific activities in the last ten years

1 . Teaching courses in Abstract Algebra to master 1 students.

a. A complement in algebra, which included lectures, practice, and applied research in the theory of groups and rings.

b. Galois theory which contains extensions of fields, algebraic number theory, and the theory of finite fields.

c. Supervising Master 2 students in a number of topics in algebra, algebraic number theory and linear algebra.

2. Teaching algebra materials (logic and set theory, groups and rings, linear algebra and matrix computation) to first-year students in mathematics and computer science.

3. Teaching algebra 3 and 4, logic and geometry to second year mathematics students

For Algebra 3 it includes spectral theory and matrix diagonalization, the normal forms and Jordan’s forms.

Algebra 4 includes the study of bilinear and quadratic forms and their diagonalization, Euclidean and Hermitian space, inertia theorem and classification of quadratic forms.

4. Completion of two publications: It contains matrix diagonalization and its applications, bilinear algebra, and quadratic forms and their application. The two publications were also collected in a book with the addition of two appendices. The first appendix includes the generalization of some important theories and their applications for the benefit of researchers and doctoral students, where some types of matrix analysis have been added, as well as generalization of matrix theory.

Book Title: Décomposition Matricielles et leurs applications.

5. Participation in preparing exams for international competitions

From 2014 to 2019, I participated in the preparation, monitoring and correction of mathematics exams (algebra) for the scholarship competition abroad, which is supervised by the Regional Symposium of east Universities in Constantine and commissioned by the Ministry of Higher Education.

6. Participation in examining and evaluating research topics and university publications for the Department of Mathematics.

7. Member of the Laboratory of Mathematics of Oum El-Bouaghi University.

8. Supervising PhD students from 2014/2015 to the present time.

9. A member of the expert committees for university qualification for some professors.

10. Member of expert committees for university publications for some professors.

11. Chairman of the Scientific Committee of the Department of Mathematics and Computer science until March 2019.

12. A reference to some international journals specialized in mathematics, such as:

American Mathematical Society (AMS), Science and Education

Languages spoken:

1. Arabic (mother)

2. French language.

3. English language.

4. Turkish (second level)

Scientific publications:

Mathematical articles fall into the following search fields:

• Linear Algebra

• Algebraic Number theory

• Idempotent semirings (also called tropical algebra)

Topics on which articles have been published:

• Generalized inverses of matrices over pre-Hilbertian space

• Generalized inverses of matrices over finite fields

• Generalized inverses of matrices over Minkowski space

• Generalized inverses of matrices over Max-Plus-Algebra

• Minimizing vector theorem over Max-plus-Algebra

Pisot numbers

Linear codes

List of current publications:

1. **HOMMOGENOUS WEIGHTS ON THE RING R5,3 = F5 + U1F5 + U2F5 + U3F5** https://research-publication.com/amsj/uploads/papers/vol-11/iss-11/AMSJ-2022-N11-11.pdf
2. **Topological Distances and Geometry over The Symmetrized Omega Algebra**
3. **The least-squares solutions in linear codes based multisecret-sharing approach**
4. **Abstract Omega Algebra that Subsumes Tropical Min and Max Plus Algebras, Turkish Journal of Mathematics and Computer Science, 2019, Volume 11 , Issue , Pages 1 – 10** https://dergipark.org.tr/en/pub/tjmcs/issue/51517/600983
5. **The Minimizing Vector Theorem in Symmetrized Max-Plus Algebra, Journal of Convex Analysis 26 (2019), No. 2, 661--686** http://www.heldermann.de/JCA/JCA26/JCA262/jca26035.htm
6. **Generalized inverse of matrices in Max-Plus-Algebra, 2017, Asian journal of mathematical Sciences.**
7. **The Invariance of the Reverse Order Law under Generalized Inverses of the Product of Two Closed Range Bounded Linear Operators on Hilbert Spaces and Characterization of the Property by the Norm Majorization**, General Letters in Mathematics (GLM), **Vol. 1(1) , 2016, 32-38**
8. **Generalized Inverses of Matrices and Least-Squares Solutions in Linear Codes**

Conference Paper ·December 2015.

9. **Finiteness of the cyclic group related to the group inverse of a matrix and Marchov chains, Conference paper, 2011.**

10. **Comments on the fractional parts of Pisot numbers**
    Feb 2015 · Archivum Mathematicum
11. **Some New Algebraic and Topological Properties of the Minkowski Inverse in the Minkowski Space Oct 2013 · The Scientific World Journal**
12. **Index of a generalized inverse of an endomorphism Jan 2013 · Applied Sciences**
13. **Semigroup of generalized inverses of matrices, 2010, Applied Sciences.**
14. **On algebraic properties of the generalized inverse of the product of two matrices, 2008, international journal of Algebra.**

روابط مفيدة:

Researchgate:

https://www.researchgate.net/profile/Hanifa_Zekraoui2

Google Scholar :

https://scholar.google.com/citations?user=pccsJcwAAAAJ&hl=en

Academia:

https://azerty.academia.edu/HanifaZekraoui