Curriculum Vitae
Gábor Farkas

Personal details

Name: Farkas, Gábor

Title: Dr habil Ph.D.

Date of Birth: 18 July 1963

Place of Birth: Békéscsaba, Hungary

Citizenship: Hungarian

Address: H-1116 Budapest, Albert utca 51. 6/62, Hungary

Telephone: (+36) (30)-742-7429

E-mail: farkasg@compalg.inf.elte.hu

Workplace address: H-1117 Budapest, Pázmány Péter sétány 1/C, Hungary

Background Summary

Experience of teaching and research in mathematics and computer science since 1990

More than 35 publications mainly in computational and analytic number theory

Six world recorder prime numbers

Research Areas

Computational number theory [34], [19], [20], [23], [24], [25], [36]

Prime number records [18], [21], [26], [22], [29], [31]

Analytic number theory [1], [2], [3], [7], [10], [11], [12], [13], [15], [8], [17]

Elliptic curve primality proving [27], [33]

Probability theory (Computational simulations of Cycling-waiting Systems) [4], [5], [6], [9], [16]

Education and academic degrees

2012 **Habilitation** in Computer Science, Eötvös Loránd University, /ELTE/ Budapest, Hungary

2001 **Ph.D.** in Computer Science, Mathematics Doctoral Program, Eötvös Loránd University, /ELTE/ Budapest, Hungary (Registry Number of Degree: 728/2002, Grade of Degree: Summa cum Laude).

1990 **MSc** Computer Scientist Mathematician, József Attila University, /JATE/ Szeged, Hungary (Registry Number of Degree: 140/1990).

1988 **BSc** Computer Programmer Mathematician, József Attila University, /JATE/ Szeged, Hungary (Registry Number of Degree: 134/1988).

Professional Advancement

2002 - Associate Professor, Eötvös Loránd University, /ELTE/ Budapest, Hungary, Department of Computer Algebra.

1998 - 2002 Assistant Professor, Eötvös Loránd University, /ELTE/ Budapest, Hungary, Department of Computer Algebra.

1993 -1997 Assistant Professor, University of Veszprém, Hungary, Department of Mathematics and Computer Science.

1991 -1993 Assistant Professor, Szent-Györgyi Albert Medical University, /SZOTE/ Szeged, Hungary, Institute of Medical Informatics.

1990 -1991 Assistant Researcher, Automation Theory Research Team, Hungarian Academy of Science Szeged.

Taught university courses

PhD courses

Generalised Number Systems

Algebraic Number Theory

Undergraduate courses

Discrete Mathematics

Introductory Mathematics

Algebraic Geometry

Computer Science

Undergraduate courses taught in English

Computer Science

Introductory Mathematics

Advising

Opponent: On the Generalized Number Systems of the Complex Numbers, Gábor Nagy's Ph.D. Degree (2013)

Supervisor: Primes and cryptographical applications, Karina Bunyik's Thesis (2011)

Secretary of board of examiners: Data Mining and Search Groups, Károly Csalogány's Ph.D. Degree (2010)

Secretary of board of examiners: Distribution of Additive Arithmetical Functions, László Germán's Ph.D. Degree (2009)

Memberships

Academic Membership

Member of Public Body of the Hungarian Academy of Sciences

Reviewing

Reviewer at Mathematical Reviews (2005-2010)

Committee of conference

Numbers, Functions, Equations '08, De La Motte Castle, Noszvaj, Hungary (2008)

Numbers, Functions, Equations '13, Visegrád, Hungary (2013)

Awards, Prizes and Scholarships

Tempus Scholarship, Catholic University of Nijmegen, Holland (1996)

DAAD Scholarship, University of Paderborn, Germany (2002)

DAAD Scholarship, University of Paderborn, Germany (2003)

HPC-Europa grant, CWI Amsterdam, Holland, (2005)

Scientific Prize of the Faculty of Informatics of ELTE (2005)

HPC-Europa grant, CWI Amsterdam, Holland, (2006)

Scientific Prize of the Faculty of Informatics of ELTE (2006)

The Prize of Prominent Professor of the Faculty of Informatics of ELTE (2010)

Hungarian - Vietnamese intergovernmental grant (2012)

Hungarian - Vietnamese grant of the Foundation TéT (2012-2013)

Lectures and presentations

The behavior of complete residue systems the in real quadratic extension of rational numbers, Proc. Numbers, Functions, Equations '98, Noszvaj, Hungary, (1998)

The investigation of generalized number systems in algebraic extension fields University of Paderborn, Germany, (2002)

Generalized number systems in real quadratic fields, Proc. Numbers, Functions, Equations '03, Noszvaj, Hungary (2003)

Generalized Number Systems and Fractal Geometry (in Hungarian), ELTE Neumann's Day, Budapest, Hungary, (2004)

Hunting for the largest twin prime of the world (in Hungarian), ELTE Neumann's Day, Budapest, Hungary, (2005) (co-presenter Csajbók T.- Kasza J.)

Searching the largest twin prime of the world (in Hungarian), Feast of Hungarian Science, Györ, Hungary, (2005)

Computational Number Theory (in Hungarian), New Generation Conference, Noszvaly, Hungary, (2006)

On Large Prime Combinations, International Conference on Number Theory and Related Topics, Hanoi, Vietnam, (2006)

Prime Records, Dept. of Math. - Info. Hochiminh University of Education, Hochiminh

City, Vietnam, (2006)

Prime-hunting Friedrich Schiller University Jena, Germany, (2008)

Primality and Cryptography Friedrich Schiller University, Jena, Germany, (2009)

New Prime Records Friedrich Schiller University Jena, Germany, (2010)

Prime-hunting, Dept. of Math. - Info. Hochiminh University of Education, Hochiminh City, Vietnam, (2010)

Computational Number Theory, University of Hue, Vietnam, (2010)

New Prime Records, Mathematical Research Institute of Vietnam, Hanoi, Vietnam, (2010)

Computational investigation of Lehmers Totient Problem, ELTE Neumann's Day, Budapest, Hungary, (2011)

On Computational Number Theory (interview), Educatio Press, Hungary (2012)

Distributing Algorithms and High Performance Computations (in Hungarian), Final Conference of TAMOP, Visegrád, Hungary, (2012)

Computational Number Theory, University Radboud Nijmegen, Holland, (2012)

Applications of Quadratic Fields in Computational Number Theory, University of Hue, Vietnam, (2012)

Language Skills

Hungarian (mother tongue)

English (fluent)

German (reading scientific texts)

Russian (reading scientific texts)

French (reading scientific texts)

Publications of Gábor Farkas

[1] G. Farkas, *The behavior of complete residue systems the in real quadratic extension of rational numbers*, Proc. Numbers, Functions, Equations '98, Noszvaj, Hungary, Leaflets in Matematics, Jannus Pannonius Univ. (Pécs), (1998)

[2] G. Farkas, *Number Systems in real quadratic fields*, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 18** 47-59, (1999)

[3] G. Farkas, *Digital expansion in real algebraic quadratic fields*, Mathematica Pannonica **Vol 10 (2)** 235-248, (1999)

[4] G. Farkas, *Investigation of a continuous cyclic-waiting problem by simulation* , Annales Univ. Sci. Budapest., Sect. Comp. **Vol 19** 225-235, (2000)

[5] G. Farkas, P. Kárász, *Investigation of a discrete cyclic-waiting problem by simulation*, Acta Acad. Paed. Agriensis Sect. Math. **Vol 27** 57-62, (2000)

[6] G. Farkas, W. S. Abdallah, *Numerical investigation of the convergence to the limit distribution in a cyclic-waiting system*, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 20** 207-220, (2001)

[7] G. Farkas, *Location and number of periodic elements in* $Q\left(\sqrt{2}\right)$, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 20** 133-146, (2001)

[8] G. Farkas Investigation of Generalized Number Systems in Algebraic Fields, *PhD Thesis in Hungarian*, ELTE IK Budapest, (2001)

[9] G. Farkas, *Numerical investigation of a cyclic-waiting queueing system with two types of customers*, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 21** 153-163, (2002)

[10] G. Farkas, A. Kovács, *Canonical expansions in real quadratic fields*, Proc. Numbers, Functions, Equations '03, Noszvaj, Hungary, Leaflets in Matematics, Jannus Pannonius Univ. (Pécs), (2003)

[11] G. Farkas, A. Kovács, *Generalized number systems in real quadratic fields*, Proc. Numbers, Functions, Equations '03, Noszvaj, Hungary, Leaflets in Matematics, Jannus Pannonius Univ. (Pécs), (2003)

[12] G. Farkas, *Periodic elements and number systems in* $Q\left(\sqrt{2}\right)$, Mathematical and Computer Modelling **Vol 38** 783-788, (2003)

[13] G. Farkas, A. Kovács, *Digital expansion in* $Q\left(\sqrt{2}\right)$, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 22** 83-94, (2003)

[14] G. Farkas, Á. Fülöp, J. Gonda, A. Járai, A. Kovács, C. Láng, J. Székely, *Introductory Mathematics (in Hungarian), Lecture Notes (241 pages)* , ELTE Eötvös Kiadó, ISBN 963 463 729 9, (2004)

[15] G. Farkas, A. Kovács, *Canonical expansions of integers in real quadratic fields*, Annales Univ. Sci. Budapest., Sect. Comp. **Vol 23** 123-135, (2004)

[16] G. Farkas, P. Kárász, *Exact solution for a two-type customers retrial system*, Computers and Mathematics with Applications, **Vol 49** 95-102, (2005)

[17] G. Farkas, I. Kátai, Algorithms of Informatics (in Hungarian), Lecture Notes Chapter: Number Theory (62 pages), ELTE Eötvös Kiadó, ISBN 963 463 775 2 (2005)

[18] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known twin primes of the World,* $16869987339975 \cdot 2^{171960} \pm 1$ *(51779 digits)*, http://primes.utm.edu/top20/page.php?id=1, (2005)

[19] T. Csajbók, G. Farkas, J. Kasza, *Sieving methods in Computational Number Theory*, Science and Supercomputing in Europe. Bologna: CINECA Consorzio Interuniversitario, 544-547 (2005)

[20] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *Report on the largest known twin primes*, Annales Univ. Sci. Budapest, Sect. Comp. **Vol 25**, 247-248 (2005)

[21] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known twin primes of the World,* $100314512544015 \cdot 2^{171960} \pm 1$ *(51780 digits)*, http://primes.utm.edu/top20/page.php?id=1, (2006)

[22] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known Sophie Germain prime of the World,* $137211941292195 \cdot 2^{171960} - 1$ *(51780 digits)*, http://primes.utm.edu/top20/page.php?id=2, (2006)

[23] T. Csajbók, G. Farkas, J. Kasza, *Curious Prime Combinations and Prime Records*, Science and Supercomputing in Europe. Bologna: CINECA Consorzio Interuniversitario, 537-540 (2006)

[24] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *Report on the largest known Sophie Germain and twin primes*, Annales Univ. Sci. Budapest, Sect. Comp. **Vol 26**, 181-183 (2006)

[25] G. Farkas, *On Large Prime Combinations*, International Conference on Number Theory and Related Topics, abstract, Hanoi, Vietnam, **Vol 17**, (2006)

[26] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known twin primes of the World,* $194772106074315 \cdot 2^{171960} \pm 1$ *(51780 digits)*, http://primes.utm.edu/top20/page.php?id=1, (2007)

[27] G. Farkas, G. Kallós, *Prime Numbers in Generalized Pascal Triangles*, Acta Tech. Jaur. **Vol 1** 109-118 (2008)

[28] G. Farkas, Á. Fülöp, The Sandbox Method in Quadratic Fields, *Annales Univ. Sci. Budapest., Sect. Comp.* **Vol 28** 235-248, (2008)

[29] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known Sophie Germain prime of the World,* $620366307356565 \cdot 2^{253824} - 1$ *(76424 digits)*, http://primes.utm.edu/top20/page.php?id=2, (2009)

[30] K. Bunyik, G. Farkas, *Introductory Cryptography and Results (in Hungarian), essay (89 pages)*, GS1 Hungary, (2009)

[31] T. Csajbók, G. Farkas, A. Járai, Z. Járai, J. Kasza, *The largest known Sophie Germain prime of the World,* $648621027630345 \cdot 2^{253824} - 1$ *(76424 digits)*, http://primes.utm.edu/top20/page.php?id=2, (2009)

[32] G. Farkas, Á. Fülöp, J. Gonda, A. Járai, A. Kovács, C. Láng, J. Székely, *Introductory Mathematics with Computational Applications (in Hungarian), Lecture Notes (443 pages)*, ELTE Eötvös Kiadó, ISBN 978 963 284 077 2, (2009)

[33] G. Farkas, G. Kallós, G. Kiss *Large Primes in Generalized Pascal Triangles*, Acta Universitatis Sapientiae Informatica **Vol 3, No 2** 158-171 (2011)

[34] p. burcsi, S. Czirbusz, G. Farkas, Computational Investigation of Lehmer's Totient Problem, *Annales Univ. Sci. Budapest., Sect. Comp.* **Vol 35** 43-49, (2011)

[35] G. Farkas, I. Kátai, Computations in Algebraic Geometry (in Hungarian), Lecture Notes, 133 pages, Pátria Kiadó Budapest, (2012)

[36] G. Farkas Quadratic Fields from Mathematics and Informatics Point of View, *Habilitation Thesis (in Hungarian)*, 109 pages, ELTE IK Budapest, (2012)