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CURRICULUM VITAE

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Education —

B.S. in mathematics, University of Science and Technology of China (Hefei, Anhui) 1982
M.S. in mathematics, University of Science and Technology of China (Hefei, Anhui) 1985
Ph.D. in mathematics, University of Illinois at Chicago 1990

Academic Experience —

Assistant Professor, Wright State University, 1990 – 1996
Associate Professor, Wright State University, 1996 – 2002
Professor, Wright State University, 2002 – 2003
Assistant Professor, University of South Florida, 2003 – 2007
Associate Professor, University of South Florida, 2007 – 2011
Professor, University of South Florida, 2011

Selected Academic Visits —

Visiting Professor, Université de Toulon, France, Aug. 1996 – Sept. 1996
Visiting Associate Professor, Ohio State University, Sept. 1997 – June 1998
Visiting Scholar, Institut Nationale de Recherche en Informatique et en Automatique (IN-RIA), France, April 1998
Visiting Scholar, Department of Mathematics, University of Florida, July 1999 – Sept. 1999
Visiting Scholar, National University of Singapore, Dec. 2000
Visiting Scholar, Institute of Mathematics, Academia Sinica, Taipei, Taiwan, May 2017.
Visiting Scholar, Hubei University, Wuhan, China, Dec. 2017 and May 2019.

Research Interests —

- Algebra: Finite fields, finite rings, chain rings, Galois rings, finite local Frobenius rings, permutation polynomials and rational functions over finite fields, classical groups over finite fields
- Number Theory: Number theory of finite fields, exponential sums, function fields over finite fields, isomorphism classes of p-adic fields
- Coding Theory and Cryptography: Covering radius, Reed-Muller codes, number of inequivalent codes, group actions on Boolean functions, resilient functions
- Combinatorics: Bent functions, difference sets, applications of finite fields in combinatorics
- Topology: Knot invariants

Scholarship —

Refereed Publications —

(1) X. Hou, *Bloch functions in the unit ball of $\mathbb{C}^n$*, Chinese Math. Annual Ser. A **8** (1987), 287 – 299.
(2) X. Hou, *A note on the characterizations of type-1 λ-designs*, ARS Combinatoria **29** (1990), 271 – 276.
(3) X. Hou, *Some results on the norm of codes*, IEEE Trans. Inform. Theory **36** (1990), 683 – 685.

(4) X. Hou, *New lower bounds for covering codes*, IEEE Trans. Inform. Theory **36** (1990), 895 – 899.

(5) X. Hou, *An improved sphere covering bound for the codes with* $n = 3R + 2$, IEEE Trans. Inform. Theory **36** (1990), 1476 – 1478.

(6) X. Hou, *Binary linear quasi-perfect codes are normal*, IEEE Trans. Inform. Theory **37** (1991), 378 – 379.

(7) X. Hou, *On the covering radius of subcodes of a code*, IEEE Trans. Inform. Theory **37** (1991), 1706 – 1707.

(8) X. Hou, *The* λ-*designs with* $e_1 = 4$, ARS Combinatoria **32** (1991), 319 – 329.

(9) X. Hou, *On the G-matrices with entries and eigenvalues in* $\mathbb{Q}(i)$, Graph and Combinatorics **8** (1992), 53 – 64.

(10) X. Hou, *Some inequalities about the covering radius of Reed-Muller codes*, Des. Codes Cryptogr. **2** (1992) 215 – 224.

(11) X. Hou, *Some results on the covering radii of Reed-Muller codes*, IEEE Trans. Inform. Theory **39** (1993), 366 – 378.

(12) X. Hou, *Further results on the covering radii of the Reed-Muller codes*, Des. Codes Cryptogr. **3** (1993), 167 – 177.

(13) X. Hou, *Classification of cosets of the Reed-Muller code* $R(m - 3, m)$, Discrete Math. **128** (1994), 203 – 224.

(14) X. Hou, $AGL(m, 2)$ *acting on* $R(r, m)/R(s, m)$, J. Algebra **171** (1995), 921 – 938.

(15) X. Hou, $GL(m, 2)$ *acting on* $R(r, m)/R(r - 1, m)$, Discrete Math. **149** (1996), 99 – 122.

(16) X. Hou, *On the covering radius of* $R(1, m)$ *in* $R(3, m)$, IEEE Trans. Inform. Theory **42** (1996), 1035 – 1037.

(17) X. Hou, *The covering radius of* $R(1, 7)$ — *a simpler proof*, J. Combin. Theory A **74** (1996), 337 – 341.

(18) X. Hou, *The covering radius of* $R(1, 9)$ *in* $R(4, 9)$, Des. Codes Cryptogr. **8** (1996), 285 – 292.

(19) X. Hou, *On the centralizer of the centralizer of a matrix*, Linear Alg. and Appl. **256** (1997), 251 – 261.

(20) X. Hou, *The Reed-Muller code* $R(1, 7)$ *is normal*, Des. Codes Cryptogr. **12** (1997), 75 – 82.

(21) X. Hou, *On the norm and covering radius of the first order Reed-Muller codes*, IEEE Trans. Inform. Theory **43** (1997), 1025 – 1027.

(22) X. Hou and P. Langevin, *Results on bent functions*, J. Combin. Theory A **80** (1997), 232 – 246.

(23) X. Hou, J. Lahtonen and S. Koponen, *The Reed-Muller code* $R(r, m)$ *is not* $\mathbb{Z}_4$-*linear for* $3 \leq r \leq m - 2$, IEEE Trans. Inform Theory **44** (1998), 798 – 799.

(24) X. Hou, *Cubic bent functions*, Discrete Math. **189** (1998), 149 – 161.

(25) X. Hou, *q-ary bent functions constructed from chain rings*, Finite Fields Appl. **4** (1998), 55 – 61.

(26) X. Hou, *New constructions of bent functions*, J. Combin. Inform. and System Sci. **25** (2000), 173 – 189.

(27) X. Hou, *On the coefficients of binary bent functions*, Proc. Amer. Math. Soc. **128** (2000), 987 – 996.

(28) X. Hou, *Bent functions, partial difference sets and quasi-Frobenius local rings*, Des. Codes Cryptogr. **20** (2000) 251 – 268.

(29) X. Hou and S. Sehgal, *An extension of building sets*, J. Combin. Designs **8** (2000), 50 – 57.

(30) X. Hou and S. Sehgal, *Two generalized constructions of relative difference sets*, J. Alg. Combin. **12** (2000), 145 – 153.

(31) X. Hou, K. H. Leung and Q. Xiang, *New partial difference sets in $\mathbb{Z}_{p^2}^t$ and a related problem about Galois rings*, Finite Fields Appl. **7** (2001), 165 – 188.

(32) X. Hou, *Finite commutative chain rings*, Finite Fields Appl. **7** (2001), 382 – 396.

(33) X. Hou, *The eigenmatrix of the linear association scheme on $R(2, m)$*, Discrete Math. **237** (2001), 163 – 184.

(34) X. Hou, *New partial difference sets in p-groups*, J. Combin. Designs **10** (2002), 394 – 402.

(35) X. Hou, K. H. Leung and Q. Xiang, *A generalization of an addition theorem of Kneser*, J. Number Theory **97** (2002), 1 – 9.

(36) X. Hou, *On binary resilient functions*, Des. Codes, Cryptogr., **28** (2003), 93 – 112.

(37) X. Hou, K. H. Leung and S. L. Ma, *On the groups of units of finite commutative chain rings*, Finite Fields Appl., **9** (2003), 20 – 38.

(38) X. Hou, *Rings and constructions of partial difference sets.* Discrete Math., **270** (2003), 149 – 176.

(39) X. Hou, *Group actions on binary resilient functions*, AAECC **14** (2003), 97 – 115.

(40) X. Hou, *Elementary divisors of tensor products and p-ranks of binomial matrices*, Linear Alg. Appl., **374** (2003), 255 – 274.

(41) X. Hou and K. Keating, *Enumeration of isomorphism classes of extensions of p-adic fields*, J. Number Theory, **104** (2004), 14 – 61.

(42) X. Hou, *Solution to a problem of S. Payne*, Proc. Amer. Math. Soc., **132** (2004), 1– 8.

(43) X. Hou, *A note on the proof of Niho's conjecture*, SIAM J. Discrete Math. **18** (2004), 313 – 319.

(44) X. Hou, *p-ary and q-ary versions of certain results about bent functions and resilient functions*, Finite Fields Appl. **10** (2004), 566 – 582.

(45) X. Hou, *Enumeration of certain affine invariant extended cyclic codes*, J. Combin. Theory A, **110** (2005), 71 – 95.

(46) X. Hou, *A note on the proof of a theorem of Katz*, Finite Fields Appl., **11** (2005), 316 – 319.

(47) X. Hou, *A ring theoretic construction of Hadamard difference sets in $\mathbb{Z}_8^n \times \mathbb{Z}_2^n$*, J. Alg. Combin., **22** (2005), 181 – 187.

(48) X. Hou, *On the asymptotic number of non-equivalent q-ary linear codes*, J. Combin. Theory A **112** (2005), 337 – 346.

(49) X. Hou, *Affinity of permutations of $\mathbb{F}_2^n$*, Discrete Appl. Math. **154** (2006), 313 – 325.

(50) W. E. Clark, X. Hou, and A. Mihailovs, *The affinity of a permutation of a finite vector space*, Finite Fields Appl., **13** (2007), 80 – 112.

(51) X. Hou and A. Nechaev, *A construction of finite Frobenius rings and its application to partial difference sets*, J. Algebra **309** (2007), 1 – 9.

(52) X. Hou, *On the asymptotic number of non-equivalent binary linear codes*, Finite Fields Appl., **13** (2007), 318 – 326.

(53) X. Hou, *On the asymptotic number of inequivalent binary self-dual codes.* J. Combin. Theory A, **114** (2007), 522 – 544.

(54) X. Hou, *Explicit evaluation of certain exponential sums of binary quadratic functions*, Finite Fields Appl., **13** (2007), 843 – 868.

(55) X. Hou, *On a vector space analogue of Kneser's theorem.* Linear Algebra Appl. **426** (2007) 214 – 227.

(56) X. Hou, *On the number of inequivalent binary self-orthogonal codes*, IEEE Trans. Inform. Theory **53** (2007), 2459 – 2479.

(57) X. Hou, *The number of inequivalent binary self-orthogonal codes of dimension 6*, in Advances in Coding Theory and Cryptology, Series on Coding Theory and Cryptology,

2, 244 – 256, edited by T. Shaska, W. C. Huffman, D. Joyner, V. Ustimenko, World Scientific Publishing Co. Pte. Ltd., Hackensack, NJ, 2007.

(58) X. Hou, *On the dual of a Coulter-Matthews bent function*, Finite Fields Appl., **14** (2008), 505 – 514.

(59) X. Hou and G. McColm, *When is betweenness preserved?* Rocky Mountain J. Math., **38** (2008), 123 – 137.

(60) X. Hou, *Hurwitz equivalence in tuples of generalized quaternion groups and dihedral groups*, Electronic Journal of Combinatorics **15** (2008), #R80

(61) X. Hou, *Asymptotic numbers of non-equivalent codes in three notions of equivalence*. Linear and Multilinear Alg., **57** (2009), 111 – 122.

(62) X. Hou, *On the analytic solution of the Cauchy problem*, Proc. Amer. Math. Soc., **137** (2009), 597 – 606.

(63) X. Hou, S. R. López-Permouth, B. R. Parra-Avila, *Rational power series, sequential codes and periodicity of sequences*, J. Pure Appl. Alg., **231** (2009), 1157 – 1169.

(64) X. Hou and G. L. Mullen, *Number of irreducible polynomials and pairs of relatively prime polynomials in several variables over finite fields*, Finite Fields Appl., **15** (2009), 304 – 331.

(65) X. Hou and C. Sze, *On certain diagonal equations over finite fields*, Finite Fields Appl., **15** (2009), 633 – 643.

(66) X. Hou, G. L. Mullen, J. A. Sellers, J. L. Yucas, *Reversed Dickson permutation polynomials over finite fields*, Finite Fields Appl., **15** (2009), 748 – 773.

(67) X. Hou, *Enumeration of* $\mathrm{AGL}(\frac{m}{3}, \mathbb{F}_{p^3})$-*invariant extended cyclic codes*, International Journal of Information and Coding Theory, **1** (2010) 214 – 243.

(68) X. Hou and Tue Ly, *Necessary conditions for reversed Dickson polynomials to be permutational*, Finite Fields Appl., **16** (2010) 436 – 448.

(69) X. Hou, *Two classes of permutation polynomials over finite fields*, J. Combin. Theory A, **118** (2011), 448 – 454.

(70) P. Langevin and X. Hou, *Counting partial spread functions in eight variables*, IEEE Trans. Inform. Theory, **57** (2011), 2263 – 2269.

(71) X. Hou, *Automorphism groups of Alexander quandles*, J. Algebra **344** (2011), 373 – 385.

(72) X. Hou, *Classification of self dual quadratic bent functions*, Des. Codes Cryptogr., **63** (2012), 183 – 198.

(73) X. Hou, *A new approach to permutation polynomials over finite fields*, Finite Fields Appl., **18** (2012), 492 – 521.

(74) K. Hicks, X. Hou, G. L. Mullen, *Sums of reciprocals of polynomials over finite fields*, Amer. Math. Monthly, **119** (2012), 313 – 317.

(75) N. Fernando and X. Hou, *A piecewise construction of permutation polynomials over finite fields*, Finite Fields Appl., **18** (2012), 1184 – 1194.

(76) X. Hou, *Finite modules over* $\mathbb{Z}[t, t^{-1}]$, Journal of Knot Theory and Its Ramifications, **21** (2012), 1250079 (28 pages).

(77) W. E. Clark, M. Elhamdadi, X. Hou, M. Saito, T. Yeatman, *Connected quandles associated with pointed abelian groups*, Pacific J. Math., **264** (2013), 31 – 60.

(78) W. E. Clark and X. Hou, *Galkin quandles, pointed abelian groups, and sequence* $A000712$, Electronic Journal of Combinatorics, **20** (1) (2013), #P45.

(79) X. Hou, A. G. Lecuona, G. L. Mullen, J. A. Sellers, *On the dimension of the space of magic squares over a field*, Linear Alg. Appl., **438** (2013), 3463 – 3475.

(80) N. Fernando, X. Hou, S. D. Lappano, *A new approach to permutation polynomials over finite fields, II*, Finite Fields Appl., **22** (2013), 122 – 158.

(81) X. Hou *Classification of p-ary self dual quadratic bent functions, p odd*, J. Algebra, **391** (2013), 62 – 81.

(82) X. Hou, *A class of permutation binomials over finite fields*, J. Number Theory, **133** (2013), 3549 – 3558.

(83) X. Hou, *Proof of a conjecture on permutation polynomials over finite fields*, Finite Fields Appl., **24** (2013), 192 – 195.

(84) X. Hou, *A class of permutation trinomials over finite fields*, Acta Arith., **162** (2014), 51 – 64.

(85) N. Fernando, X. Hou, S. D. Lappano, *Permutation polynomials over finite fields involving* $x + x^q + \cdots + x^{q^{a-1}}$, Discrete Math., **315-316** (2014), 173 – 184.

(86) X. Hou, *Determination of a type of permutation trinomials over finite fields*, Acta Arith., **166** (2014), 253 – 278.

(87) X. Hou, *Permutation polynomials over finite fields — a survey of recent advances*, Finite Fields Appl., **32** (2015), 82 – 119.

(88) X. Hou and S. D. Lappano, *Determination of a type of permutation binomials over finite fields*, J. Number Theory, **147** (2015), 14 – 23.

(89) X. Hou, *A survey of permutation binomials and trinomials over finite fields*, Proceedings of the 11th International Conference on Finite Fields and Their Applications, Magdeburg, Germany, 2013, Contemporary Mathematics **632**, 177 – 191, 2015.

(90) X. Hou, *Lattice of ideals of the polynomial ring over a commutative chain ring*, AAECC, **26** (2015), 317 – 346.

(91) X. Hou, *Determination of a type of permutation trinomials over finite fields, II*, Finite Fields Appl., **35** (2015), 16 – 35.

(92) X. Hou, F. Özbudak, Y. Zhou, *Switchings of semifield multiplications*, Des. Codes Cryptogr. **80** (2016), 217 – 239.

(93) X. Hou, *On global $\mathcal{P}$-forms*, J. Number Theory, **160**(2016), 307 – 325.

(94) N. Fernando and X. Hou, *From r-linearized polynomial equations to r^m-linearized polynomial equations*, Finite Fields Appl., **37** (2016), 14 – 27.

(95) X. Hou, *Permutation polynomials of $\mathbb{F}_{q^2}$ of the form $ax + x^{r(q-1)+1}$*, in Contemporary Developments in Finite Fields and Applications (Editors: A. Canteaut, G. Effinger, S. Huczynska, D. Panario, L. Storme), World Scientific, New Jersey, 2016, pp. 74 – 101.

(96) X. Hou, *Polynomials meeting Ax's bound*, Acta Arith., **176** (2016), 65 – 80.

(97) X. Hou, S. D. Lappano, F. Lazebnik, *Proof of a conjecture on monomial graphs*, Finite Fields Appl., **43** (2017), 42 – 68.

(98) X. Hou, *Complexities of normal bases constructed from Gauss periods*, Des. Codes Cryptogr. **86** (2018), 893 – 905.

(99) X. Hou *On the DLW conjectures*, J. Number Theory **187** (2018), 288 – 295.

(100) A. Blokhuis, X. Cao, W-S. Chou, X. Hou, *On the Roots of certain Dickson polynomials*, J. Number Theory **188** (2018), 229 – 246.

(101) X. Hou, *Applications of the Hasse-Weil bound to permutation polynomials*, Finite Fields Appl. **54** (2018), 113 – 132.

(102) X. Hou, *Optimal binary constant weight codes and affine groups over finite fields*, Des. Codes Cryptogr. **87** (2019), 1815 – 1838.

(103) X. Hou, *On a class of permutation trinomials in characteristic 2*, Cryptography and Communications, **11** (2019), 1199 – 1210.

(104) W-S. Chou and X. Hou, *On a conjecture of Fernando, Hou and Lappano concerning permutation polynomials over finite fields*, Finite Fields Appl. **56** (2019), 58 – 92.

(105) A. Gorodilova, S. Agievich, C. Carlet, X. Hou, V. Idrisova, N. Kolomeec, A. Kutsenko, L. Mariot A. Oblaukhov, S. Picek, B. Preneel, R. Rosie, N. Tokareva, *The Fifth International Students' Olympiad in cryptography — NSUCRYPTO: Problems and their solutions*, Cryptologia **44** (2020), 223 – 256.

(106) X. Hou, Z. Tu, X. Zeng, *Determination of a class of permutation trinomials in characteristic three*, Finite Fields Appl. **61** (2020), Article 101596, 27 pp.

(107) X. Hou, *PGL$(2, \mathbb{F}_q)$ acting on $\mathbb{F}_q(x)$*, Communications in Algebra, **48** (2020), 1640 – 1649.

(108) X. Hou and A. Iezzi, *An application of the Hasse-Weil bound to rational functions over finite fields*, Acta Arith. **195** (2020), 207 – 216.

(109) X. Cao, X. Hou, J. Mi, S. Xu, More permutation polynomials with Niho exponents which permute $\mathbb{F}_{q^2}$, Finite Fields Appl. **62** (2020), Article 101626, 30 pp.

(110) X. Hou, *The Möbius function of the affine linear group* AGL$(1, \mathbb{F}_q)$, Discrete Math. **343** (2020), Article 112112, 7 pp.

(111) X. Hou, *On the Tu-Zeng Permutation Trinomial of Type* $(1/4, 3/4)$, Discrete Math. **344** (2021), Article 112241, 14 pp.

(112) X. Hou and C. Sze, *On a type permutation rational functions over finite fields*, Finite Fields Appl. **68** (2020), Article 101758, 9 pp.

(113) X. Hou, *Rational functions of degree four that permute the projective line over a finite field*, Communications in Algebra, Published online 15 April 2021.

(114) X. Hou, *A power sum formula by Carlitz and its applications to permutation rational functions of finite fields*, Cryptogr. Commun. **13** (2021), 681 – 694.

(115) D. Bartoli and X. Hou *On a conjecture on permutation rational functions over finite fields*, Finite Fields Appl. **76** (2021), Article 101904.

(116) X. Hou, *On the number of affine equivalence classes of Boolean functions and q-ary functions*, IEEE Trans. Inform. Theory **67** (2021), 5592 – 5601.

Unrefereed Publications —

(1) S. Draper and X. Hou, *Explicit evaluation of certain exponential sums of quadratic functions over $\mathbb{F}_{p^n}$, p odd*, arXiv:0708.3619v1, `http://arxiv.org/`

(2) X. Hou, *Third Power of the reversed Dickson polynomial over finite fields*, arXiv:1104.0201v1, `http://arxiv.org/`

Papers Currently Submitted —

(1) X. Hou and C. Sze, *On a radical extension of the field of rational functions in several variables.*

(2) X, Hou and V. P. Lavorante, *New results on permutation binomials of finite fields.*

Papers In Preparation —

(1) X. Hou, *On a conjecture on permutation polynomials of $\mathbb{F}_{q^2}$ of the form $a\mathtt{X} + \mathtt{X}^{r(q-1)+1}$.*

(2) X. Hou, *Rational functions of degree five that permute the projective line over a finite field.*

(3) X, Hou and V. P. Lavorante, *A general construction of permutation polynomials of $\mathbb{F}_{q^2}$.*

Books Chapters —

(1) X. Hou, *Multivariate polynomials*, Section 3.6 in *Handbook of Finite Fields*, editors: G. L. Mullen and D. Panario, Taylor & Francis, Boca Raton, 2013.

Books —

(1) X. Hou, *Lectures on Finite Fields*, Graduate Studies in Mathematics 190, American Mathematical Society, Providence, RI, 2018.

Books In Preparation —

(1) X. Hou, *Concise Notes on Algebra.*

Technical Reports —

(1) X. Hou and S. Sehgal, *Building sets and semi-regular divisible difference sets*, Technical report 98-4, The Ohio State Univ. Math. Research Institute, 1998.

(2) X. Hou and S. Sehgal, *Two generalized constructions of relative difference sets*, Technical Report 98-9, The Ohio State Univ. Math. Research Institute, 1998.

(3) W. E. Clark, X. Hou, A. Mihailovs, *The affinity of a permutation of a finite vector space*, Technical report 2004-3, Department of Mathematics, Tennessee Technological University, 2004.

Conference Talks —

(1) *Some results on the covering radii of codes*, IEEE International Symposium on Information Theory (San Diego, CA) January 1990.

(2) *Binary linear quasi-perfect codes are normal*, Marshall Hall Conference (Burlington, VT) September 1990.

(3) *On the covering radius of Reed-Muller codes*, Sixth Midwestern Conference on Combinatorics, Cryptography and Computing (Lincoln, NE) October 1991.

(4) *Classification of cosets of the Reed-Muller code $R(m-3,m)$*, IEEE International Symposium on Information Theory (San Antonio, TX) January 1993.

(5) *$GL(m,2)$ acting on $R(r,m)/R(r-1,m)$*, Shanghai Conference on Designs, Codes and Finite Geometries (Shanghai, China) May 1993.

(6) *$AGL(m,2)$ acting on the cosets of the Reed-Muller codes*, The Ohio State University – Denison University Conference on Groups, Rings and Combinatorics (Columbus, OH) March 1994.

(7) *Recent results on Reed-Muller codes*, American Mathematical Society (Chicago, IL) March 1995.

(8) *Cosets of the Reed-Muller codes*, The Mediterranean Workshop on Coding and Information Integrity Palma, Spain February 1996.

(9) *Cubic bent functions*, The Ohio State University – Denison University Conference on Groups, Rings and Combinatorics (Granville, OH) May 1996.

(10) *New constructions of bent functions*, The International Conference on Combinatorics, Information Theory and Statistics (Portland, ME) July 1997.

(11) *On the coefficients of binary bent functions*, American Mathematical Society (Louisville, KY) March 1998.

(12) *Building sets and semi-regular divisible difference sets*, The XXIVth Ohio State-Denison Mathematics Conference (Granville, OH) May 1998.

(13) *New Nonlinear codes constructed from the Reed-Muller codes*, American Mathematical Society (Chicago, IL) Sept. 1998.

(14) *New partial difference sets in $\mathbb{Z}_{p^2}^t$ and a related problem about Galois rings*, International Conference on Algebra and Its Applications (Athens, OH) March, 1999.

(15) *Rings and constructions of partial difference sets*, American Mathematical Society (South Bend, IN) April 2000.

(16) *The eigenmatrix of the linear association scheme on $R(2,m)$*, The XXVth Ohio State-Denison Mathematics Conference (Columbus, OH) May 2000.

(17) *The eigenmatrix of the linear association scheme on $R(2,m)$*, World Multiconference on Systemics, Cybernetics and Informatics (Orlando, FL) July, 2000.

(18) *New partial difference sets in abelian p-groups*, American Mathematical Society (Columbus, OH) September 2001.

(19) *Group actions on binary resilient functions*, The XXVIth Ohio State-Denison Mathematics Conference (Granville, OH) May 2002.

(20) *Group actions on binary resilient functions*, International Conference on Cryptography (Porquerolles, France) June 2002.

(21) *Affinity of permutations of $\mathbb{F}_2^n$*, Workshop on Coding and Cryptography (Versailles, France) March 2003.

(22) *Enumeration of certain affine invariant extended cyclic codes*, American Mathematical Society (Athens, OH) March 2004.

(23) *Skew polynomials, semi-linear transformations and the number of non-equivalent codes*, The XXVIIth Ohio State-Denison Mathematics Conference (Columbus, OH) June 2004.

(24) *Enumeration of* $\mathrm{AGL}(\frac{m}{3}, \mathbb{F}_{p^3})$*-invariant extended cyclic codes*, American Mathematical Society (Evanston, IL) October 2004.

(25) *Asymptotic numbers of non-equivalent codes in three notions of equivalence*, American Mathematical Society (Atlanta, GA) January 2005.

(26) *On the asymptotic numbers of inequivalent binary self-dual codes*, American Mathematical Society (Newark, DE) April 2005.

(27) *On the number of inequivalent binary self-orthogonal codes*, SIAM Conference on Discrete Mathematics (Victoria, BC) June 25 – 28, 2006.

(28) *On the number of inequivalent binary self-orthogonal codes*, American Mathematical Society (Cincinnati, OH) October 21 – 22, 2006.

(29) *A construction of finite Frobenius rings and its application*, American Mathematical Society and Sociedad Matemática Mexicana VII Joint Meeting, Zacatecas, Méxcio, May 23 – 26, 2007.

(30) *New results on self-orthogonal codes*, American Mathematical Society (Chicago, IL) October 5 – 6, 2007.

(31) *Rational power series and sequential codes*, American Mathematical Society (Kalamazoo, MI) October 17 – 19, 2008.

(32) Plenary Speaker: *Recent results on reversed Dickson polynomials over finite fields*, The Fourth International Workshop on Finite Fields and Their Applications, Beijing, China, May 27 – 30, 2010.

(33) *A new approach to permutation polynomials over finite fields*, Workshop on Coding, Cryptology and Combinatorial Designs, Singapore, May 15 – June 11, 2011.

(34) *Classification of self dual quadratic bent functions*, American Mathematical Society (Tampa, FL) March 10 – 11, 2012.

(35) Plenary Speaker: *Classification of self dual quadratic bent functions*, The Fifth International Workshop on Finite Fields and Their Applications, Beijing, China, June 28 – 30, 2012.

(36) *A class of permutation binomials over finite fields*, Canadian Discrete and Algorithmic Mathematics (CanaDAM), St. John's, Newfoundland, Canada, June 10 – 13, 2013.

(37) Plenary Speaker: *New permutation binomials and trinomials over finite fields*, The 11th International Conference on Finite Fields and their Applications, Magdeburg, Germany, July 22 – 26, 2013.

(38) *Global $\mathcal{P}$-forms*, The 45th Southeastern International Conference on Combinatorics, Graph Theory, and Computing Boca Raton, FL, March 3-7, 2014.

(39) Plenary Speaker: *Global $\mathcal{P}$-forms*, The 6th International workshop on Finite Fields and their Applications, Beijing, China, June 28 – 30, 2014.

(40) *Permutation Polynomials of $\mathbb{F}_{q^2}$ of the Form $a\mathrm{x} + \mathrm{x}^{r(q-1)+1}$*, The 12th International Conference on Finite Fields and Their Applications, Saratoga Springs, NY, July 13 – 17, 2015.

(41) *Polynomials meeting Ax's bound*, American Mathematical Society (Chicago, IL) October 3 – 4, 2015.

(42) *Proof of a conjecture on monomial graphs*, Workshop on New Directions in Combinatorics, Singapore, May 23 – 27, 2016.

(43) *Zeros of polynomials over finite fields*, 30th Southeastern Regional Meeting On Numbers, (Jacksonville, FL) March 31 – April 2, 2017.

(44) *On the DLW conjectures*, 2017 International Conference on Combinatorics, Taipei, Taiwan, May 19 – 22, 2017.

(45) *Some applications of the Hasse-Weil bound*, American Mathematical Society (Orlando, FL) September 23 – 24, 2017.

(46) *The Möbius function of the affine linear group $AGL(1, \mathbb{F}_q)$*, 2018 Zassenhaus Group Theory and Friends Conference, University of South Florida, Tampa, FL, April 6 – 8, 2018.

(47) *Recent developments on permutation trinomials*, The Ninth International Workshop on Finite Fields and Their Applications, Zhengding, Shijiazhuang, Hebei, China, May 25 – 29, 2018.

(48) *Recent developments on permutation trinomials*, The Third Workshop on Boolean Functions and Their Applications, Loen, Norway, June 17 – 22, 2018.

(49) *Determination of a class of permutation trinomials in characteristic three*, Mathematical Theory Applied in Coding and Cryptography Workshop, Sanya, China, December 10 – 14, 2018.

(50) *$PGL(2, \mathbb{F}_q)$ Acting on $\mathbb{F}_q(x)$*, Sixth International Symposium on Coding, Cryptography and Combinatorics, Wuhan, China, May 9 – 12, 2019.

(51) *On the Tu-Zeng Permutation Trinomial of Type $(1/4, 3/4)$*, 2019 Symposium on Algebra and Cryptography, Wuhan, China, May 17 – 19, 2019.

(52) *On the Tu-Zeng Permutation Trinomial of Type $(1/4, 3/4)$*, Banff International Research Station (BIRS) Workshop on Permutation Polynomials over Finite Fields, Banff, Canada, June 9 – 16, 2019.

Other Invited Talks —

(1) *Mathematical problems arising from cryptography*, University of Tampa, Department of Mathematics Colloquium, April 16, 2004.

(2) *On the dual of a Coulter-Mathews bent function*, Wright State University, Department of Mathematics and Statistics, Colloquium, Dayton, OH, Oct. 20, 2006.

(3) *Finite Frobenius rings and applications*, Ohio University Center for Ring Theory and its Applications, Lecture Series, May 8-11, 2007.

(4) *Reversed Dickson permutation polynomials*, University of Toulon, France, Institute of Mathematics, Colloquium, Dec. 9, 2008.

(5) *Reversed Dickson permutation polynomials over finite fields*, University of Central Florida, Department of Mathematics Colloquium, April 2, 2009.

(6) *Reversed Dickson permutation polynomials and related polynomials over finite fields*, The Pennsylvania State University, Department of Mathematics, Algebra and Number Theory Seminar, Oct. 22, 2009.

(7) *Sums of reciprocals of polynomials over finite fields*, Eastern Kentucky University, Department of Mathematics, Undergraduate Seminar, April 2, 2013.

(8) *Bent functions, their generalizations and relatives*, Eastern Kentucky University, Department of Mathematics Seminar, April 3, 2013.

(9) *Primes* USF Pi Mu Epsilon Induction April 25, 2014.

(10) *Finite fields and infinite groups*, Shanghai Jiao-Tong University, Department of Mathematics Seminar, Shanghai, China, June 19, 2014,

(11) *Proof of a conjecture on monomial graphs*, University of Delaware, Department of Mathematics Seminar, Nov. 13, 2015.

(12) *Proof of a conjecture on monomial graphs*, Aeronautics and Astronautics University of Nanjing, Department of Mathematics Seminar, Nanjing, China, May 17, 2016.

(13) *On Gauss periods*, Carleton University, Department of Mathematics Seminar, Oct. 28, 2016, Ottawa, Canada.

(14) *Zeros of polynomials over finite fields*, University of Science and Technology of China, Department of Mathematics Seminar, Hefei, China, May 31, 2017.

(15) *Applications of the Hasse-Weil bound to permutation polynomials over finite fields*, University of Florida, Department of Mathematics Colloquium, November 6, 2017.

(16) *Applications of the Hasse-Weil bound*, Hubei University, Department of Mathematics Colloquium, Wuhan, China, December 12, 2017.

(17) *Some open questions about permutation polynomials over finite fields*, Central China Normal University, Department of Mathematics Colloquium, Wuhan, China, December 13, 2017.

(18) *$PGL(2, \mathbb{F}_q)$ Acting on $\mathbb{F}_q(x)$*, University of South Florida, Department of Mathematics and Statistics Seminar, Tampa, Florida, March 18, 2019.

(19) *On the Tu-Zeng permutation trinomial of type $(1/4, 3/4)$*, Aeronautics and Astronautics University of Nanjing, Department of Mathematics Seminar, Nanjing, China, May 13, 2019.

(20) *$PGL(2, \mathbb{F}_q)$ acting on $\mathbb{F}_q(x)$*, Southeast University, Department of Mathematics Seminar, Nanjing, China, May 13, 2019.

(21) *Hasse-Weil bound and composition of rational functions over finite fields*, Central China Normal University, Department of Mathematics Colloquium, Wuhan, China, May 20, 2019.

(22) *Hasse-Weil bound and composition of rational functions over finite fields*, Hubei University, Department of Mathematics Colloquium, Wuhan, China, May 22, 2019.

(23) *Hasse-Weil bound and composition of rational functions over finite fields*, South Central University for Nationalities, Department of Mathematics Colloquium, Wuhan, China, May 24, 2019.

(24) *Four talks on permutation rational functions of finite fields*, Aeronautics and Astronautics University of Nanjing, Department of Mathematics Seminar, Nanjing, China, Dec. 4, 11, 18, 25, 2020.

(25) *Four talks on the Reed-Muller code and related topics*, Aeronautics and Astronautics University of Nanjing, Department of Mathematics Seminar, Nanjing, China, April 16, 23, 28, May 7, 2021.

(26) *On the number of equivalence classes of Boolean functions*, Simon Fraser University, Burnaby, Canada, June 2, 2021.

(27) *On the number of equivalence classes of Boolean functions*, University of South Florida, Department of Mathematics and Statistics Seminar, Tampa, FL, Sept. 13, 2021.

Grants and Contracts —

(1) *Coset Structure and Covering Radii of Reed-Muller Codes*, NSA, 1993-1995.
(2) *Two Projects in Algebra and Combinatorics*, NSA, 2002-2005.
(3) *New Approaches to Permutation Polynomials over Finite Fields*, NSA 2012-2014.

Professional Services —

Journal Editorial Board —
- Finite Fields and Their Applications (since 2011)
- Journal of Algebra and Its Applications (2006 – 2015)

Journal Referee and Conference Proceedings Referee —

- In recent years, I refereed about ten papers for various journals and conference proceedings per year.

AMS Math Review —

- I have been a reviewer for *Mathematical Reviews* since 2004.

Zentralblatt MATH —

- I have been a reviewer for *Zentralblatt MATH* since 2013.

Textbook Review —

- Discrete Mathematics with Graph Theory by Edgar G. Goodaire and Michael M. Parmenter, 3rd ed., Pearson Prentice Hall, Upper Saddle River, NJ, 2006
- Linear Algebra, A Geometric Approach, by T. Shifrin and M. R. Adams, 2nd ed., W. H. Freeman & Co., 2009.
- Applications of Abstract Algebra, by Maya Ahmed, book proposal to Springer, 2009.

PhD Students —

Neranga Fernando, 2013
Stephen Lappano, 2016
Christopher Sze, current