Curriculum Vitae

Hua Wang

Address: Mathematical Sciences
     Georgia Southern University
     Statesboro, GA, 30460

Work Phone: (912) 478-0366
E-mail: hwang@georgiasouthern.edu

EDUCATION

2005   **Ph.D. in Mathematics**, University of South Carolina, Columbia, SC 29208
Dissertation: *Subtrees of Trees, Wiener Index and Related Problems,* Advisor: Laszlo Szekely.
Outstanding dissertation award in Sciences, Mathematics and Engineering,
Graduate school, University of South Carolina **(**one is awarded every two years.**)**.

2000   **B.S. in Mathematics**, Wuhan University, Wuhan, P.R.China.

RESEARCH INTERESTS

Combinatorics: Enumerative Problems, Analytic Combinatorics, Combinatorial Game Theory
Graph Theory: Extremal structures, Graph Labeling, Trees
Number Theory: Analytic Number Theory, Combinatorial Number Theory
Applications: Gene Network in Systems Biology, Chemical indices of molecular graphs, Phylogenetic Trees,
      Financial Flow Networks

EMPLOYMENT

2008 – present   **Tenure-Track Assistant/Associate Professor**
Department of Mathematical Sciences, Georgia Southern University
Conducting independent research as well as collaborating with colleagues and supervising students.
Main projects include:
- Improving/generalizing traditional chemical indices;
- Compositions, bijections and sequences;
- Random walk on gene network;
- Application of Combinatorics in image reconstruction and flexagons;
- Graceful labeling and generalizations;
- Network flow on finance flow;
- Variations of the 'Colonel Blotto' game.

2005 – 2008   **John Thompson Visiting Assistant Professor**
Department of Mathematics, University of Florida
Conducting independent research as well as collaborating with colleagues and supervising students.
Main projects include:
- Extremal structures with respect to chemical indices;

- Analysis of the distribution of the values of chemical indices of molecular graphs;
- Construction of chemical structures with optimized properties;
- Graph theoretic problems related to Boolean Lattice;
- Extremal and existence problems in graphs defined by other combinatorial structures.

2000 – 2005   Research/Teaching Assistant
Department of Mathematics, University of South Carolina
Dissertation research (1 semester and 3 summers), supported by **NSF** grant. Topics included:
- Extremal and enumeration problems related to trees;
- Existence problem of Leech trees;
- Properties of the chemical indices of molecular graphs.

2002   Research Assistant
Department of Mathematics, Computer Science, Statistics and Biology, University of South Carolina
Worked in a **bioinformatics** group, and cooperated with computer scientists, biologists and mathematicians toward the construction of software to retrieve phylogenetic trees. Supported by an **internal** grant.

TEACHING EXPERIENCE

2008 – present, Department of Mathematical Sciences, Georgia Southern University
- Real Analysis
- Analysis I
- Ordinary Differential Equations
- Mathematical Structures
- Trigonometry;
- Calculus I & II;
- Discrete Mathematics;
- Led various directed study courses in Combinatorics
- Proposed graduate courses in Game Theory, Probability, and Combinatorics.

2005 – 2008, Department of Mathematics, University of Florida
Teaching graduate level and upper level undergraduate courses, including:
- Topics in Combinatorial Theory (I & II);
- Linear Algebra;
- Introduction to Combinatorics (I & II);
- Analytic Geometry and Calculus;

2000 – 2005, Department of Mathematics, University of South Carolina
Teaching lower level undergraduate courses, including:
- College Algebra;
- Pre-calculus;
- Calculus for Business Adm. & Social Sciences;
- Finite Mathematics;
- Calculus I & II (Recitation).

Supervised Student Research (selected):

- ***2008 – present, Georgia Southern University***
  Yu Yang (Joint PhD Student, thesis), (2015 – present);
  Paul Scott (Msc Student, thesis), (2014 – present);
  Vince Shen (Msc Student, thesis), (2014 – present);
  Nikolas Colbrook (Undergraduate in Mathematics, 2015 – present);
  Alicia Durden (Undergraduate in Mathematics, 2015 – present);
  Loren Haynes (Undergraduate in Mathematics, 2014 – 2015); Honor thesis, supported by COUR.
  Kayla Hagerty (Undergraduate in Mathematics, 2014 – 2015); COUR supported research.
  Matthew Just (Msc Student, thesis), (2014 – present);
  Demet Yalman (Msc Student, thesis), (2014 – present);
  Johnny Ryals (Msc Student, thesis), (2014 – present);
  Jing Sun (Msc Student, supervised research), (2014); One paper in preparation.
  Shusen Pu (Msc Student, supervised research), (2014); One paper to be submitted.
  Yiran Zhang (Msc Student, supervised research), (2013 – 2014); One paper accepted and more in preparation.
  Shujiao Huang (Msc Student, supervised research), (2012 – 2014); One paper submitted, others in
               preparation.
  Michael Ackerman (Undergraduate in Mathematics, 2013 – 2014); Work presented at multiple conferences.
  Joseph Thompson (Undergraduate in Engineering, 2013);
  Tabitha Williford (Msc Student, thesis), (2012 – 2014); Work presented and submitted.
  Shuai Yuan (Msc Student, Independent Study and Thesis), (2012 – 2014); Multiple papers
               accepted/submitted.
  Brittney Benzio (Undergraduate in Mathematics, 2012 – 2014); Honor thesis presented and submitted.
  Josh Klingel (Undergraduate in Physics, 2012 – 2014). One paper accepted. Work presented in multiple
               conferences. Supported by COUR grant.
  Tony Yaacoub (Msc Student, supervised research), (2012);
  Katie Milhous (Msc Student, Independent Study and Thesis), (2012 – present). One paper accepted;
  Charles Dedrickson (Msc Student, Independent Study and Thesis), (2011 – 2012). One paper
               accepted, another in preparation;
  Fedelis Mutiso (Msc Student, supervised research), (2011 – 2012). Two papers submitted, one
               already accepted for publication;
  Mary Beth Edwards (Undergraduate in Mathematics), supported by Faculty research grant (2011 –
               2012). Work presented at MAA SE section meeting 2012, paper to appear;
  Nathan Dunn (Msc Student) (2011 – 2012), supported by Faculty research grant, paper to
               appear;
  Alex Collins (Msc Student, Independent Study and Thesis), supported by GSU graduate student
               travel grants, UC research workshop. Work presented at various conferences
               (2010 – 2012);
  Katie Milhous (undergraduate in Mathematics), supported by university COUR grant (2011 – 2012).
               Work submitted to the national (CUR) Poster on the Hill program, presented at
               MAA, COUR, PKP, EUMC conferences and symposia;
  Azell Francis (undergraduate in Engineering), honor program activity (2011);
  Nathan Dunn (undergraduate in Mathematics), honor thesis, work presented at the MAA
               sectional meeting, COUR, PKP and Honors Research symposia (2010 – 2011);
  Danielle Ripley (undergraduate in Mathematics), Capstone thesis, work presented at the MAA
               sectional meeting, COUR and Honors Research symposia (2010 – 2011);
  Daniel Gray (Msc Student, Independent Study and Thesis), supported by GSU Catalyst grant, work
               resulted in three publications/submissions and presented in multiple conferences,
               symposia. Received college research award, travel support and outstanding graduate
               student award (2008 – 2010);
  Toby Sanders (undergraduate in Mathematics), work submitted and presented, won Susan Patterson
               Prize at the MAA sectional meeting (2009 – 2010);

Hayley Spencer (undergraduate in Mathematics and Finance), honor program activity (2009);
Vanessa Cooper (undergraduate in Math and CS), supported by university COUR grant (2009);
Zanetta Geohagen (undergraduate in Biology), supported by NSF STEP ASPIRES grant for two consecutive years (2009, 2010), work presented as poster and oral presentations in multiple conferences.

- ***2005 – 2008, University of Florida***
  Independent Work Study: *Yong Yang* (graduate student);
  Russell Kirk (undergraduate), work published in two journals and presented in conferences;
  Undergraduate Thesis: *Allison Kirkpatric* (undergraduate in Mathematics).

SELECTED AWARDS/HONORS

<u>*2008 – present, Georgia Southern University*</u>

2015 **COSM Teaching Excellence Award**
COSM, Georgia Southern University

2014 **Excellence for Scholarly Activity**
Georgia Southern University

2014 **COSM Research Excellence Award**
COSM, Georgia Southern University

2014 **Spot-light faculty member**
Georgia Southern University

2012 **Simons Collaboration Grant ($35000.00)**
Simons Foundation

2012 **Distinguished Teaching Award for beginning faculty**
MAA SE Section

2011 **Faculty Research Grant ($9047.00)**
Georgia Southern University

2011 **Faculty Service Grant**
Georgia Southern University

2010 **Top Cited Paper Award**
Advances in Applied Mathematics, Elsevier

2009 **Research Excellence Award**
College of Science and Technology, Georgia Southern University

2009, 2010 **NSF (National Science Foundation) STEP ASPIRES Grant for supervising undergraduate summer research**
Georgia Southern University

2009, 2011 **University COUR Grant for supervising undergraduate research**
Georgia Southern University

2009,2011,2013 **Travel Grant (CET)**
Center for Excellence in Teaching, Georgia Southern University

2008 **Catalyst Phase I Grant ($5130.00)**
Georgia Southern University

<u>*Before 2008*</u>

2005 – 2008 **John Thompson Postdoctoral Fellowship**
Department of Mathematics, University of Florida

2007 **Travel fund awarded by CAM (Center for Applied Math)**
Department of Mathematics, University of Florida

2006 **Outstanding Dissertation Award in Sciences, Mathematics and Engineering**
Graduate school, University of South Carolina (awarded once every two years)

2005 **Dean's Award for Excellence in graduate study**

Graduate school, University of South Carolina (four recipients annually)

2005   **1st place in student research competition in discrete mathematics**
SIAM student chapter, University of South Carolina

2005   **2nd place in student research presentation in physical science**
Graduate school, University of South Carolina

2004   **Outstanding graduate student**
Department of Mathematics, University of South Carolina (one recipient annually)

2001   **Outstanding first year graduate student**
Department of Mathematics, University of South Carolina

1997, 1998   **1st grade Scholarship**
Department of Mathematics, Wuhan University, China

1998   **Model Student Leader**
Department of Mathematics, Wuhan University, China

1998   **Excellent Student Leader in Sports Activities**
Department of Mathematics, Wuhan University, China

1997   **Excellent Student in Extracurricular Activities**
Department of Mathematics, Wuhan University, China

1994, 1995   **2nd Grade Prize**
National High School Contest of Mathematics, China

1994   **1st Grade Prize & Gold Medal,**
National "Cup of Hope" Contest of Mathematics, China

SELECTED PUBLICATIONS AND PAPERS

Book Chapters

1) **Mathematical Chemistry Monographs - Distance in Molecular Graphs Theory, Univ. Kragujevac, Kragujevac, 2012, 195 – 214**
2) **Martin Gardner in the Twenty-First Century, MAA, Inc. 2013**
3) **Recent Trends in Combinatorics – Extremal problems related to graph invariants in trees, IMA, 2015**

Journal Articles

4) (With L.A. Szekely) *On subtrees of trees,*
   Advances in Applied Mathematics, 34 (2005), 138 – 155
5) (With L.A. Szekely and Y. Zhang) *Some non-existence results on Leech trees,*
   ICA Bulletin, 44 (2005), 37 – 45
6) (With L.A. Szekely) *Binary trees with the largest number of subtrees with at least one leaf,*
   Congressus Numernatium, 177 (2005), 147 – 169
7) (With G. Yu) *All but 49 numbers are Wiener indices of trees,*
   Acta Applied Mathematicae, 92 (2006), no. 1, 15 – 20
8) (With L. A. Szekely) *Binary trees with the largest number of subtrees,*
   Discrete Applied Math, 155 (2007), no. 3, 374 – 385
9) (With A. Vince) *Infinitely many trees have non-Sperner subtree poset,*
   Order, 24(2) (2007), 133 – 138
10) (With R. Kirk) *The hyper-Wiener index of trees,*
    Congressus Numerantium (187) (2007), 40 -- 54
11) *Extremal trees with given degree sequence for the Randic index,*
    Discrete Math. 308 (2008), 3407 – 3411
12) *The extremal values of the Wiener index of a tree with given degree sequence,*
    Discrete Applied Math, 156(14) (2008), 2647 – 2654
13) (With R. Kirk) *Largest number of subtrees of trees with a given maximum degree,*
    SIAM J. Discrete Mathematics 22(3) (2008), 985 – 995

14) (With S. Wagner and G. Yu) *Molecular graphs and the inverse Wiener problem,*
Discrete Applied Math 157(7) (2009), 1544 – 1554

15) (With S. Wagner) *On the parity of the Wiener index of trees,*
European Journal of Combinatorics 30(4) (2009), 996 – 1004

16) (With S. Wagner) *On a problem of Ahlswede and Katona,*
STUDIA SCI. MATH. HUNGARICA 46(3) (2009), 423 – 435

17) (With D. Gray) *On the Randic index and extremal cacti,*
Congressus Numerantium 197 (2009), 87 – 96

18) *Trees with given number of vertices and pendant edges and their Wiener indices,*
Advances and Applications in Mathematical Sciences 2 (2010), 167 -- 175

19) (With A. Vince) *The average order of a subtree of a tree,*
Journal of Combinatorial Theories, B 100(2) (2010), 161 -- 170

20) *Sums of distances between vertices/leaves in k-ary trees,*
Bull. Inst. Comb. Appl., 60 (2010), 62 – 68

21) (With L. A. Szekely and T. Wu) *The sum of the distances between leaves of a tree and the 'semi-regular' property,*
Discrete Mathematics, 311 (2011), 1197 – 1203

22) (With X. Li, Y. Wu, J. Zhu) *A full row-rank system matrix generated along two directions in discrete tomography*,
Applied Mathematics and Computation, 218 (2011), 107 – 114

23) *On the Wiener index: an edge version v.s. the original,*
Bull. Inst. Comb. Appl. 63 (2011), 101 – 108

24) (With E. Iacob, B. Mclean) *The V-flex, Triangle Orientation and Catalan Numbers in Hexaflexagons,*
College Mathematics Journal, 43(1) (2012), 6 – 10

25) (With N. Schmuck, S. Wagner) *Greedy trees, Caterpillars, and Wiener-type graph invariants,*
MATCH Communications in Math and Computer Chemistry, 68(1) (2012), 273 – 292

26) (With A. Sills) *On the maximal Wiener index and related questions*,
Discrete Applied Math, 160 (2012), 1615 – 1623

27) (With D. Gray, X-D Zhang, X-M Zhang) *Trees with the most subtrees -- an algorithmic approach,*
Journal of Combinatorics, 3(2) (2012), 207 – 224

28) (With D. Gray) *Cycles, the degree distance, and the Wiener index,*
Open Journal of Discrete Mathematics, (2) (2012), 156 – 159

29) (With A. Collins, F. Mutiso) Optimal trees for f*unctions of internal distance,*
Involve, 5(3) (2012), 371 – 378

30) (With D. Gray, X-D Zhang, X-M Zhang) *The number of subtrees of trees with given degree sequence*,
Journal of Graph Theory, 73(3) (2013), 280 – 295

31) (With S. Wagner, X-D Zhang) *Distance-based graph invariants of trees and the Harary index,*
FILOMAT, 27:1 (2013), 41 – 50

32) (With A. Collins, C. Dedrickson) *Binary words, n-color compositions and bisection of the Fibonacci numbers,*
Fibonacci Quarterly, 51(2) (2013), 130 – 136

33) (With K. Milhous) *Pattern avoidance in cryptography: Theoretical supports and questions,*
Advances and Applications in Discrete Mathematics, 12(1) (2013), 55 – 60

34) (With L. A. Szekely) *Extremal values of ratios: distance problems vs. subtree problems in trees,*
Electronic Journal of Combinatorics, 20(1) (2013), 67, 20 pp

35) (With G. Peng) *Mathematical model of dynamic protein interactions regulating p53 protein stability for tumor suppression,*
Computational and Mathematical Methods in Medicine, (2013) Art. ID 358980

36) (With E. Andriantiana, S. Wagner) *Greedy trees, subtrees and antichains,*
Electronic Journal of Combinatorics, 20(3) (2013), 28, 25 pp

37) (With N. Dunn, M. Edwards, R. Sun) *Modified network flow algorithm in modeling financial distribution,*
FJMS (special volume on financial management), (2013), 323 – 332

38) (With S. Wagner) *Indistinguishable trees and graphs,*
Graphs and Combinatorics, 30 (2014), 1593 – 1605

39) (With M. Hall, C. Magnant) *Note on Enomoto and Ota's conjecture for short paths in large graphs,*
Graphs and Combinatorics, 30 (2014), 1463 – 1467

40) (With L. Lindroos, A. Sills) *Odd Fibbinary Numbers and the Golden Ratio,*
Fibonacci Quarterly, 52(1) (2014), 61 – 65

41) (With V. Coll, J. Davis, M. Hall, C. Magnant) *Boxes, pans, and cans: a Diohpantine approach to optimization,*
College Mathematics Journal, 45(3) (2014), 180 – 190

42) (With G. Peng, Y-R Zhang) *Identify key links in the DNA repair network regulated by tumor suppressors PTEN and BRCA1 through maximum flow analysis,*
FJMS (special volume on biological science), 543 – 648

43) (With L. A. Szekely) *Extremal values of ratios: distance problems vs. subtree problems in trees II,*
Discrete Mathematics, 322 (2014), 36 – 47

44) (With G. Peng, W. Tu) *Synthetic lethality as a promising approach for targeted cancer prevention,*
Cancer and Clinical Research, (2014) 2:a15

45) *Functions on adjacent vertex degrees of trees with given degree sequence,*
Central European Journal of Mathematics, 12 (2014), 1656 – 1663

46) *The distances between internal vertices and leaves of a tree,*
European Journal of Combinatorics, 41 (2014), 79 – 99

47) (With A. Sills) *The minimal number of subtrees of a tree,*
Graphs and Combinatorics, 31 (2015), 255 – 264

48) (With M. Bartlett, E. Krop, C. Magnant, F. Mutiso) *Variations of distance-based invariants of trees,*
Journal of Combinatorial Mathematics and Combinatorial Computing, 91 (2014), 19 – 29

49) (With S. Yuan) *Trees with given degree sequence in S-order,* to appear in
Journal of Combinatorial Mathematics and Combinatorial Computing

50) *Centroid, leaf-centroid, and internal-centroid,*
Graphs and Combinatorics, 31 (2015), 783 – 793

51) (With A. Collins, C. Magnant) *Tight Super-edge-graceful labelings of trees and their applications,* to appear in
AKCE International Journal of Graphs and Combinatorics

52) (With A. Halperin, C. Magnant) *On large semi-linked graphs,*
Discrete Mathematics, 338 (2015), 122 – 129

53) *Extremal trees of the eccentric connectivity index,* to appear in
Ars Combinatorica

54) (With J. Klingel) *Generalization of Fibonacci sequences: combinatorial identities and tilings,*
Congressus Numerantium, 222 (2014), 115 – 125

55) (With T. Sanders) *Colonel Blotto's Combinatorial Decisions – a resource allocation problem,* to appear in
Advances and Applications in Discrete Mathematics

56) (With H. Liu, Y. Yang) *Subtrees, BC-subtrees of generalized Bethe trees and related questions,* to appear in
Ars Combinatorica

57) (With H. Liu, S. Makeig, Y. Yang) *Enumeration of BC-subtrees of trees,*
Theoretical Computer Science, 580 (2015), 59 – 74

58) (With S. Wagner) *On the local and global means of subtree orders,* to appear in
Journal of Graph Theory

59) (With A. Collins, S. Landge, T. Williford) *Labeling and comparison of isomeric tree-like polyphenyl systems,*
Journal of Mathematical Sciences: Advances and Applications 32 (2015), 37 – 56

60) (With C. Magnant, P. Salehi) *Graphs obtained from collections of blocks,*
Elec Journal of Graph Theory and Applications, 3 (2015), 50 – 55

61) (With E. Andriantiana, S. Wagner) *Maximum Wiener index of trees with given segment sequence,* to appear in
MATCH Communications in Math and Computer Chemistry

62) (With H. Fu, H. Liu, Y. Yang) *Subtrees of spiro and polyphenyl hexagonal chains,* to appear in
Applied Mathematics and Computation

63) (With V. Coll, M. Hyatt, C. Magnant) *Meander graphs and Frobenius Seaweed Lie Algebras II,* to appear in
Journal of Generalized Lie Theory and its Applications

64) (With D. Gray) *Note on superpatterns,* to appear in
Involve

65) (With S. Feng, H. Liu, Y. Yang) *On algorithms for enumerating BC-subtrees of unicyclic and Edge-disjoint bicyclic graphs,* to appear in
Discrete Applied Mathematics

66) *Note on hook-length as a graph invariant,* to appear in
Journal of Combinatorics

67) (With S. Huang, W. Tu, Z. Ju, G. Poage, A. Brewster, S. Lin, G. Mills, G. Peng) *A five-gene signature inferred from transcriptome profiling of homologous recombination-mediated DNA repair predicts clinical outcome of patients with cancer,* to appear in
Biomarkers

68) (With M. Just) *Colored patterns and their packing densities,* to appear in
Congressus Numerantium

69) (With C. Magnant, S. Yuan) *Path partitions of almost regular graphs,* to appear in
Australasian J of Combinatorics

70) (With C. Magnant, P. Morley, S. Porter, P. Salehi) *Note on directed proper connection,* to appear in
Matematicki Vesnik

71) (With S. Yuan) *On the sum of squares of degrees and products of adjacent degrees,* to appear in
Discrete Mathematics

72) (With E. Iacob, B. Mclean) *About general order regular flexagons,* to appear in
Ars Combinatoria

73) (With H. Liu, S Sun, Y. Yang) *On spiro and polyphenyl hexagonal chains with respect to the number of BC-subtrees,* to appear in
International Journal of Computer Mathematics

74) (With H. Smith, L.A. Szekely) *Eccentricity sum in trees,* **submitted**

75) (With S. Yuan) *Enumeration of constrained subtrees of trees,* **submitted**

76) (With M. Ozen, D. Yalman) *Note on Leech-type questions of trees,* **submitted**

77) (With M. Just) *Note on packing patterns in colored permutations,* **submitted**

78) (With M. Ozen, D. Yalman) *An edge-swap heuristic for finding dense spanning trees,* **submitted**
79) (With B. Hopkins, A. Sills, T. Thanatipanonda) *Parts and subword patterns in compositions,* **submitted**
80) (With Y-H Chen, X-D Zhang) *Note on extremal graphs with given matching number,* **submitted**

SELECTED ACADEMIC TALKS

2008 - present

- *Topological indices of trees*
  Guest Lecture, Texas A & M University, September, 2015, College Station, TX
- *Parts and subword patterns in integer compositions*
  Department of Mathematics, Texas A & M University, September, 2015, College Station, TX
- *Maximizing distance in trees*
  Joint Austrian-Hungarian Mathematical Conference, August 25-27, 2015, Gyor, Hungary
- *A small branch goes a long way: Subtrees and Distances*
  28th Cumberland Conference, May 15-17, 2015, Columbia, SC
- **Luncheon Speaker**
  2015 Georgia Southern University Research Symposium, April 24, 2015
- *Numbers and Patterns: Mathematics and Mathematical Sciences*
  Department of Mathematics, New Jersey City University, March 30, 2015
- *Combinatorial topics from a distance question*
  Department of Mathematics, Washington and Lee University, March 25, 2015, Lexington, VA
- *Optimization through structural information*
  College of Science and Mathematics Common Ground Seminar
  Georgia Southern University, February 20, 2015
- *Permutations containing large number of a prescribed pattern*
  AMS session on Combinatorics
  2015 AMS/MAA joint National Meeting, January 10-13, 2015, San Antonio, TX
- *Mathematical model of dynamic protein interactions regulating protein stability of tumor suppressors*
  MAA session on Modeling and Applications
  2015 AMS/MAA joint National Meeting, January 10-13, 2015, San Antonio, TX
- *Packing (colored) patterns in permutations*
  Palmetto Number Theory Series, December 6-7, 2014, Columbia, SC
- *Connecting lines and dots: applying graph theory*
  Department of Mathematics, Cankaya University, April 11, 2014, Ankara, Turkey
- *When sparse trees are dense and when trees are indistinguishable*
  Department of Mathematics, Middle East Technical University, April 10, 2014, Ankara, Turkey
- *Q and A in Chemical and Modern Graph Theory*
  School of Engineering, Yasar University, April 8, 2014, Ismir, Turkey
- *Extremal values of ratios: distances vs. number of subtrees in trees*
  Department of Mathematics, University of South Carolina, November 18, 2013, Columbia, SC
- *Distances vs. Substructures: "Ratio Test",*
  Colloquium talk at **Mathematical Sciences, Georgia Southern University, Fall, 2013**
- *Theories and applications of graphs*
  University of Patras, Oct 7, 2013, Patras, Greece

- *Analytic Graph Theory: questions on densities and characterization*
  School of Information, Dalian Maritime University, May 30, 2013, Dalian, China
- *Enumeration and construction: dense, sparse, and indistinguishable graphs*
  Department of Mathematics, Univ of Sci and Tech of China, May 24, 2013, Hefei, China
- *Densities and characterization of graphs*
  Department of Mathematics, Shanghai Jiaotong University, May 22, 2013, Shanghai, China
- *Density, construction, indistinguishable graphs and trees*
  Department of Mathematics, Tongji University, May 20, 2013, Shanghai, China
- *Winding up and down in Meanders*
  Invited speaker at the special session on Graphs, Hypergraphs and Counting,
  2013 Spring Central Section Meeting of AMS, April 26 – 28, 2013, Iowa State University, Ames, IA
- *Mathematical model of dynamic protein interactions regulating protein stability in tumor suppression*
  Biomath Seminar, Morgan State University, April 11, 2013
- *Colonel Blotto's Winning Ways*
  Invited plenary spearker
  Southeastern MAA Conference, Winthrop University, March 15-16, 2013, Rockhill, SC
- *Characterizaing/Distinguishing trees through density*
  Department of Mathematics, DePaul University, Feb 15, 2013, Chicago
- *Counting ways and ways of counting*
  Math club, University of Wisconsin Parkside, Feb 14, 2013
- *Seaweed algebra and meanders*
  Department of Mathematics, University of Wisconsin Parkside, Feb 13, 2013
- *Compositions, tilings, and numerical strings*
  Palmetto Number Theory Series XIX, December 1-2, 2012, Columbia, SC
- *Colored compositions and numerical strings*
  Department of Mathematics, Georgia State University, November 2, 2012, Atlanta, GA
- *When are trees dense, sparse, or indistinguishable*
  Department of Mathematics, Armstrong Atlantic State University, October 16, 2012, Savannah, GA
- *Dense trees and indistinguishable trees*
  Department of Mathematics, Texas A & M University, September, 2012, College Station, TX
- *Everything that counts in Blotto's Game*
  Invited speaker at Math REU program
  Department of Mathematics, Texas State University, June 28, 2012, San Marcos, TX
- *Greedy trees and the extremal distances*
  Invited speaker at the Minisymposium on Distance in graphs:
                                        Distance-like parameters and graph structrue
  SIAM Discrete Mathematics Conference 2012, June 18 – 21, 2012, Nova Scotia, Canada
- *Pseudo-twins and isomorphic subgraphs*
  SIAM Southeastern-Atlantic sectional meeting, March 24 – 25, 2012, Huntsville, AL
- *What else is new on subtrees of trees*
  Department of Mathematics, University of South Carolina, March 19, 2012, Columbia, SC
- *Distance-based functions of trees*
  Invited speaker at the special session on Extremal Combinatorics,
  2012 Spring Southeastern Section Meeting of AMS, March 10 – 11, 2012, Tampa, FL

- *Cospectral Mate of a random tree*
  Special session on Discrete Mathematics and its Applications
  Southeastern MAA Conference, Clayton State University, March 9, 2012, Morrow, GA
- *Indistinguishable trees and graphs*
  Invited talk at Atlanta Lecture Series in Combinatorics and Graph Theory V, Feb. 25 – 26, 2012, Emory University, Atlanta, GA
- *Greedy trees, Caterpillars and Graph Invariants – an informal introduction*
  Stellenbosch University, Feb. 14, 2012, Stellenbosch, South Africa
- *General topics of graduate study*
  African Institute of Mathematical Sciences, Feb. 06, 2012, Muizenberg, South Africa
- *Finding redundant rows in two-direction generated matrix in DT*
  Southeastern and Atlantic Regional Conference on Differential Equations, Sep. 30 – Oct. 1, 2011, Georgia Southern University, Statesboro, GA
- *Counting Subtrees: Enumerative and Extremal Questions*
  CombinaTexas Meeting, April 16 – 17, 2011, Huntsville, TX
- *Subtrees, degree sequence and partial ordering of the optimal trees*
  Special session on Discrete Mathematics,
  Southeastern MAA Conference, University of Alabama, April. 1 – 2, 2011, Tuscaloosa, AL
- *Majorization of extremal trees on the degree sequences*
  Invited speaker at the special session on Extremal Problems in Discrete Math,
  SIAM Southeastern-Atlantic sectional meeting, March 26 – 27, 2011, Charlotte, NC
- *A series of talks on Chemical Graph Theory*
  Shanghai Jiaotong University (Shanghai), Jan. 6, 2011
  Huazhong University of Science and Technology (Wuhan), Jan. 13, 2011
  Central China Normal University (Wuhan), Dec. 20, 2010
- *Questions related to subtree order and their elementary solutions,*
  Colloquium talk at **Mathematical Sciences, Georgia Southern University, Fall, 2010**
- *Trees in Phylogeny and Biochemistry*
  Special session on Applied Mathematics,
  Southeastern MAA Conference, Elon University, Mar. 26 – 27, 2010, Elon, NC
- *On two subtree problems*
  Department of Mathematics, Georgia State University, March 2010, Atlanta, GA
- *'Semi-Regular trees' and their applications*
  Invited speaker at the special session on Graph Theory,
  2009 Fall Southeastern Section Meeting of AMS, Oct. 30 – Nov. 1, 2009, Boca Raton, FL
- *Graph theory problems with elementary solutions*
  Department of Mathematics, University of West Georgia, Oct. 2009, Carrollton, GA
- *The 'Semi-Regular Property' of Extremal Tree Structures*
  Invited speaker at the special session on Biologically Motivated Combinatorics,
  SIAM Southeastern-Atlantic sectional meeting, April 4-5, 2009, Columbia, SC
- *Mathematics in biology*
  Colloquium talk at **Augusta State University, March, 2009, Augusta, GA**
- *On a distribution problem of Ahlswede and Katona*
  Invited speaker at the special session on Ulam and Combinatorics,
  Ulam Centennial Conference, March 10-11, 2009, Gainesville, FL
- *The average order of a subtree of a tree*
  Invited speaker at the special session on Graph Theory,

2008 Fall Southeastern Section Meeting of AMS, Oct. 24-26, 2008, Huntsville, AL
- *How to grow an optimal tree,*
  Colloquium talk at **Mathematical Sciences, Georgia Southern University, Fall, 2008**
- *Poset related to graph indices of trees*
  Invited speaker at the special session on Combinatorics of Partially Ordered Sets,
  2008 Spring Western Section Meeting of AMS, May 3-4, 2008, Claremont, CA

Before 2008
- *Trees with non-Sperner subtree poset*
  Mini-Conference on Applied Combinatorics, October 15-16, 2007, Columbia, SC
- *The Wiener index of trees with given degree sequence*
  Invited speaker at the special session on Algebraic and Extremal Combinatorics,
  2007 Spring Southeastern Sectional Meeting of AMS, March 3-4, 2007, Davidson, NC
- *Largest number of subtrees of trees with a given maximum degree*
  Invited speaker at the special session on Extremal and Probabilistic Combinatorics*,*
  2006 Fall Southeastern Sectional Meeting of AMS, November 3-4, 2006, Fayetteville, AR
- *Wiener index vs. the number of subtree,*
  Department of Mathematics, University of Central Florida, March 23, 2006, Orlando, FL
- *The Leech tree and distinct distance tree,*
  Invited talk in Algorithm Semnar
  Department of Computer Science, University of Florida, October 28, 2005, Gainesville, FL
- *All but 49 numbers are Wiener indices of tree*
  South East Regional Meeting on Numbers, April 15-17, 2005, Columbia, SC
- *On Wiener index and subtrees of binary trees*
  Invited speaker at the special session on Graph Theory,
  2005 Spring Central Sectional Meeting of AMS, April 8-10, 2005, Lubbock, TX
- *Binary trees with the largest number of subtrees with at least one leaf*
  Southeastern International Conference on Combinatorics, Graph Theory, and Computing, Florida Atlantic University, March, 2005, Boca Raton, FL
- *Some non-existence results on Leech trees*
  2005 AMS/MAA joint National Meeting, January 5-8, 2005, Atlanta, GA

GRANT ACTIVITIES

2008 - present
2015   **PI,** *NSA* *'On the behavior of topological indices',* **pending.**
2015   **Co-PI,** *NIH/NCI* *'Systems biology approaches to target the DNA repair network in preventing BRCA1/BRCA2-associated cancer,* **not funded.**
2014   **PI,** *NSA* *'On the behavior of topological indices',* **not funded.**
2013   **PI,** *NSA* *'On the behavior of topological indices',* **not funded.**
2014   **Co-PI,** *NIH/NCI* *'Systems biology approaches to target the DNA repair network in preventing BRCA1/BRCA2-associated cancer,* **not funded.**
2012   **PI,** *NSA* *'Applying stochastic processes in chemical graph theory to determine the behavior of chemical indices',* **not funded.**
2012   **PI,** *Simons Foundation Collaboration Grant ($35000.00),* **funded.**
2011   **PI,** *NSF* *'Applying Graph Theory to the Study of Chemical Structures',* **not funded.**
2011   **Co-PI,** Faculty Service Grant, **funded.** Georgia Southern Univeristy.
2011   **PI,** *Faculty Research Grant ($9047.00),*
             Georgia Southern University, July, 2011 – May, 2012

2011	**PI***, AACR Grants for Translational Breast Cancer Research,* **not funded**
2011	**Co-PI,** *NSF 'Project ICALC',* **not funded**.
2011	**PI,** *Simons Foundation Collaboration Grant,* **waiting list, not funded.**
2010	**PI,** NSF *Proposal for REU (Research Experience for Undergraduates) site*, **not funded**.
2010	**PI,** *CURM (Center for Undergraduate Research in Mathematics) mini grant*, **not funded**.
2009, 2011	**Assistant Project Director,** *MAA-NSF proposal for undergraduate conference,* **funded**.
2009	**Awardee,** Research Excellence Award College of Science and Technology, Georgia Southern University
2009	**PI,** *NSF 'Applying Graph Theory to the Study of Chemical Structures',* **not funded**.
2009, 2010	**Mentor,** *NSF STEP ASPIRES Grant for supervising undergraduate summer research* Georgia Southern University
09, 11, 13, 14	**Mentor,** *University COUR Grant for supervising undergraduate research* Georgia Southern University
2009, 11, 13	**Awardee,** *Travel Grant (CET)* Center for Excellence in Teaching, Georgia Southern University
2008	**PI,** *Catalyst Phase I Grant ($5130.00),* Georgia Southern University, Oct. 2008 – May, 2009

<u>*Before 2008*</u>

2005 – 2008	**Awardee,** *Summer Research Fellowship* Department of Mathematics, University of Florida
2006	**Awardee,** *Travel fund awarded by CAM (Center for Applied Math), Univ. of Florida*

PROFESSIONAL SERVICES

- **Editor in Chief:** Theory and Applications of Graphs
- **Editorial Board Member:** International Journal of Graph Theory and its Applications
- **Referee/Reviewer**
  - NSA-AMS Math. Sci. Grant Program
  - Math Review
  - Discrete Appl. Math.
  - SIAM J. Discrete Math.
  - Combinatorica
  - Utilitas Mathematica
  - Glasnik Matematicki
  - Journal of Discrete Algorithms
  - Networks
  - J. Combinatorial Theory
  - Discrete Mathematics
  - Electronic J. of Combinatorics
  - Ars Combinatorica
  - Rocky Mountain Journal of Mathematics
  - Publicationes Mathematicae Debrecen
  - Monatshefte fur Mathematik
  - International Journal of Combinatorics
  - Central European Journal of Mathematics
  - Quaestiones Mathematicae
  - Graphs and Combinatorics

Journal of Combinatorial Mathematics and Combinatorial Computing
Mathematical and Computer Modeling
Applied Mathematics Letters
Open Journal of Discrete Mathematics
IEEE Transaction on Information Theory
MATCH Communications in Mathematical and in Computer Chemistry
Cankaya University Journal of Science and Engineering
Discussiones Mathematicae Graph Theory
British Journal of Mathematics & Computer Science
Bulletin of the Iranian Mathematical Society
Journal of Applied Mathematics
Journal of Applied Mathematics and Computing
Mathematical Medicine and Bilology: A Journal of IMA
Asian Journal of Mathematics and Computer Research
International Journal of Computer Mathematics
Afrika Matematika
Journal of Applied Physical Science International
Journal of Basic and Applied Research International
Cogent Mathematics

- **Conference Organizing Committees**
    Cumberland Conference on Combinatorics, Graph Theory & Computing, 2015
    Mini-Conference on Graudate Research, Georgia Southern University, 2013
    Southeastern-Atlantic Regional Conference on Differential Equation, 2011
    International Conference on q-series, partitions and special functions, 2011
    Eagle Undergraduate Mathematics Conference, 2010, 2012, 2014
    International meeting in Combinatorics and Groups, 2008
- **Graduate director Workshop,** 2015 AMS/MAA joint meeting
- **Special Panel** on **Graduate Studies,** 2013 MAA SE sectional meeting
- **Co-hosting Graduate Professional Development Workshop,** 2014 MAA SE sectional meeting
- **Organize a special session** in Discrete Mathematics and its Applications in **2012 MAA SE sectional meeting**
- **Organized a special session** in applied combinatorics **in 2011 AMS SE sectional meeting**
- **External Master Thesis Examiner** (Eric Ould Dadah Andriantiana), Stellenbosch University, 2010
- **External Master Thesis Examiner** (Valisoa Razanajatovo Misanantenaina), Stellenbosch University, 2014
- **Chairing an undergraduate session in 2010 MAA sectional meeting**
- **Leading a discussion session in 2010 NExT program**
- **Serving as the Graduate Program Director,** Georgia Southern University, 2012 – present
- **Coaching Math Jeopardy Team,** Georgia Southern University, 2010 – 2013
- **Serving in COSM Award Committee,** Georgia Southern University, 2014 – present
- **Serving as COSM Election representative,** Georgia Southern University, 2014 – present
- **Served in University Faculty Research Committee,** Georgia Southern University, 2011 – 2012
- **Served as an alternate in the College and University Graduate Committee,** Georgia Southern University, 2012 – 2014
- **Serving in College Office of Undergraduate Research Committee,** Georgia Southern University, 2010 – present
- **MAA student Chapter Advisor,** 2010 – present

- **Department Webmaster and Server Coordinator,** 2012 – 2014
- **Undergraduate Competitinos Coordinator,** 2013
- **Organizing Departmental Math Contest,** Georgia Southern University, 2009 – 2014
- **Coordinating the departmental student blog,** Georgia Southern University, 2011
- **Serving as the president/advisor for CSSA,** Georgia Southern University, 2011 – present
- **Organizer of Combinatorics seminar,** University of Florida, 2005 – 2008
- **Other Departmental Services,** Department of Mathematical Sciences, Georgia Southern University
  - *COSM Award committee (2015-present)*
  - *Tenure and Promotion Committee (2013 – 2015)*
  - *Post Tenure Review Committee (2013 – present)*
  - *Search Committee (2010 – 2011)*
  - *Graduate Committee (2010 – present)*
  - *Course and Curriculum Committee (2010 – 2012)*
  - *Technology Committee (2011 – present)*
  - *Faculty Recorder (2009 – 2010)*
  - *Grants and Scholarship Committee (2009 – 2011)*
  - *Lead Putnam practice sessions*
  - *Colloquium Committee (2008 – 2010)*
  - *Math Tournament Committee (2008 – present)*
  - *Advising Math Majors (2011 – 2013)*
- **Served in Department Committees (before 2008),** Mathematics, University of Florida
  - *PhD Examination Committee*
  - *Pi Mu Epsilon and Putnam Committee*
  - *Visitors and Conferences Committee*
  - *Department Newsletter Committee*

MEMBERSHIPS

- **AMS** (American Mathematical Society)
- **MAA** (Mathematical Association of America)
- **SIAM** (Society for Industrial and Applied Mathematics)
- **AACR** (American Association of Cancer Research)
- **MAA SE NExT** (New Experience in Teaching)
- **ICA** (Institute of Combinatorics and Applications)
- **CUR** (Council on Undergraduate Research)

COMPUTER SKILLS

- **Computer Software Engineer** certificate
  (Awarded annually to 2% of participants of the exam) Achieved in P. R. China, 2000.