CURRICULUM VITAE

Johannes Hendrik Hattingh

September 2025

I.   EDUCATION (Academic degrees earned)

- B.Sc. (Mathematical Sciences) (1984) (cum laude) University of Johannesburg
- B.Sc. Honours (Mathematics) (1985) (cum laude) University of Johannesburg
- M.Sc. (Mathematics) (1986) (cum laude) University of Johannesburg
- Ph.D. (Mathematics) (1989) University of Johannesburg
- B.Sc. Honours (cum laude) (Computer Science) (1994) University of Johannesburg
- Certificate in Business Analytics (2019) East Carolina University

II.   PROFESSIONAL CREDENTIALS

Professor and Chair

III.   TEACHING EXPERIENCE (ACADEMIC)

- Lecturer, University of Pretoria, July 1988 - June 1989
- Lecturer, University of Johannesburg, July 1989 - December 1989
- Senior Lecturer, University of Johannesburg, January 1990 - March 1993
- Associate Professor, University of Johannesburg, April 1993 - March 1998
- Visiting scholar, Clemson University, September 1994 - June 1995
- Instructor, Clemson University, January 1997 - May 1997
- Assistant Professor, Georgia State University, July 1997 - June 2001
- Associate Professor, Georgia State University, July 2001 – June 2006
- Chair, Georgia State University, January 2004 – August 2008
- Professor, Georgia State University, July 2006 – June 2010
- Professor and Chair, East Carolina University, July 2010 - July 2020
- Director NCEMPT, October 2012 - July 2020
- Professor and Chair, University of North Carolina Wilmington, August 2020 until present

IV.   ADMINISTRATIVE EXPERIENCE (ACADEMIC)

At the University of Johannesburg:

- Colloquium Committee (1995-1996).
- Acting Head of Department (January to March 1998).
- I co-organized the 41st Annual Conference of the South African Mathematical Society, held at the University of Johannesburg in 1998.

At Georgia State University:

- Colloquium committee (1999-2003).
- Executive committee (1999-2000,2004-2008).
- Ad Hoc committee on advising on the candidacy of Dr. Jean Bevis as head of the department (2000).
- Hiring committee for tenure-track positions (2000).
- Hiring committee for lecturing positions (2000).
- Strategic Plan Committee (2001).
- Mathematics Committee (2000-2003).
- I participated in developing a Masters in Mathematics, with a concentration in Discrete Mathematics, and in developing the following courses: Math 3420, Applied Combinatorics, Math 4420/6420 Graph Theory, Math 8420 Advanced Graph Theory, and Math 8440 Combinatorics (2000-2003).
- PhD Program Development Committee, co-chair (2002-2003).
- Promotion and Tenure Committee (2001-2003,2008-2010).
- The Senate Committee on Admissions and Standards (2002-2005,2008).
- The Senate Committee on Information Systems and Technology (2002-2003).
- The Senate Committee on Student Life (2003-2005).
- Chair Evaluation Committee, co-chair (2003).
- Chair Search Committee, co-chair (2003).
- I co-organized the 16th Cumberland Conference on Combinatorics, Graph Theory, and Computing, held at Georgia State University in 2003.
- Self-study & Action Plan Development (2003-2006).
- Bioinformatics hiring committee, chair (2007).
- Chairs' Council (2004-2008).
- University System of Georgia's Academic Advisory Committee on Mathematical Subjects (2004-2008).
- Served on a college hiring committee to search for a Director of STEM initiatives for the College of Arts and Sciences (2008).
- Served as the College of Arts and Sciences' representative for the University System's initiative to increase enrollment in MAT/MEd programs (2007-2008).
- Department Chair, Georgia State University, (2004-2008).
- Led the redesign of College Algebra and Precalculus (2007-2008).
- Lead the development of the PhD Program from its initiation (first as the co-chair PhD Program Development Committee, and then as Department Chair) to

its final approval by the University System of Georgia. Implemented the PhD Program (2004-2008).

- Graduate Director for Mathematics (2009-2010).
- Served as departmental representative for the University's STEM initiative (2008-2009).

At East Carolina University:

- I developed the graduate course Math 6150 Graph Theory (2010).
- Chairs' Council (2010-2020).
- Departmental Chair (2010-2020).
- Director, NCEMPT (2012-2020).
- I was the co-chair of a panel that conducted the external evaluation of the Department of Mathematics and Applied Mathematics at the University of Pretoria, South Africa, from 13 September to 15 September 2010.
- Chair of the Evaluation Committee to evaluate the Economics Department Chair (2012).
- Redesigned Math 1065 (2011).
- Served on the Evaluation Committee to evaluate the Associate Dean for Resource Management (2015).
- Chaired the Search Committee for a new Sociology Chair (2015).
- Changed math placement testing at ECU from paper-and-pencil testing to Accuplacer (2015).
- Served on a committee to draft a workload policy for the College of Arts and Sciences (2015).
- Served on the Admission and Retention Policies Committee (2017).
- I participated in the external evaluation of the Department of Mathematics and Statistics at East Tennessee State University from 16 February to 17 February 2017.
- I was one of the two main co-authors of the self-study document for the external review of the Department which took place in 2017.
- At the end of Spring 2017, thirty high school mathematics teachers from nine counties completed an MAEd in Mathematics Education with a High School Mathematics Concentration. The program consisted of 18 hours from the College of Education and 18 hours from the Department of Mathematics taught in a unique blend of off-campus, face-to-face, and online classes. This was the largest graduating class in the history of the program and is an ECU success story of collaboration, regional transformation, and phenomenal commitment by ECU faculty and regional high school mathematics teachers. I played an instrumental role in this program, both as Chair of the Department and as a faculty member teaching one of the program's courses.
- Changed placement procedures at ECU to placement via SAT/ACT and via a summer bridge program (2018).

- I participated in establishing the MS in Data Science, which is a joint program of the Departments of Computer Science, Mathematics, Biostatistics, and Health Services and Information Management, and subsequent broadening the scope of this degree to include other disciplines (2016-2020).
- I served on the Office of Research Integrity and Compliance's Conflicts of Interest Committee (2018-2020).
- I helped organizing a convening of Math Pathways on ECU's campus to discuss removing transfer barriers for students (2019).
- I helped organizing a visit from the Dana Center at the University of Texas, Austin, to introduce Math Pathways to the ECU community and to the Department of Mathematics (2019)
- I have served as ECU's representative on the UNC system's initial Math Pathway Taskforce. The formal charge of the UNC System Math Pathways Task Force was "to develop recommendations and processes that support the efforts of each UNC institution to offer pathways that yield increased student success and learning in gateway mathematics and statistics courses". I was a co-PI on the grant "Remediation of Underprepared Students in College Algebra" funded by the UNC System's Office to investigate the implementation of co-requisite remediation in College Algebra. I also led the effort to remove College Algebra as a prerequisite for the introductory Statistics courses at ECU. We also revised the content of our Math Literacy Course and strongly encouraged enrollment of non-science and non-business major students in the Literacy Course (2018 onwards).

At the University of North Carolina Wilmington:

- All administrative processes were very much complicated due to the pandemic. Extensively used Docusign and Qualtrics for voting in an online environment, and using MS Teams for Departmental business.
- Actively worked with the Policy Committee (as well as several search committees) in updating and establishing policies as we considered the promotion and tenure of five tenure track/tenured faculty, several lecturer renewals, the promotion of three lecturers to senior lecturers, the hiring of three tenure-track faculty members, and the hiring of seven lecturers.
- Solicited external reviews for five promotion and tenure cases.
- Updated a neglected Departmental website.
- I have been involved with the 3+1 UNCW-Chongqing University partnership implementation, and prepared a resource request for discussion with the Provost.
- Chair of the Department (since August 2020).
- Implemented a demand driven departmental teaching schedule. I make sure all sections are fully enrolled, and actively combine and cancel sections where

needed. We have differential teaching loads, and faculty who are not research active are required to teach more.

- Since joining UNCW, I continued my involvement with the Math Pathways Taskforce, with the Department creating two new Pre Calculus courses (MAT 150 & MAT 160) with just in-time remediation of prerequisite skills. The Quantitative Reasoning course (MAT 101) was redesigned and unnecessary developmental prerequisites from Introductory Statistics (STT 210 & STT 215) were removed. We worked with academic units to update their lower division math requirements. I also participated in a College Board workshop on their new Precalculus AP Exam.
- AY 2022/2023 was difficult as we had to adjust to prospect of splitting CAS into two distinct colleges. This involved much time spent in many meetings for the Chairs of CAS, and also required their participation in the hiring of the two Deans, and, subsequently, the Interim Associate Deans. Fall 2023 was devoted to setting up the new College, which involved many requests from the Dean's Office of the College of Science and Engineering to their Chairs.
- I chaired the external review of Fayetteville State University's Department of Mathematics and Computer Science's Mathematics and Statistics program.
- Actively trying to increase enrollments in our graduate program, by considering the attractiveness of our program offerings, including a graduate concentration in Biostatistics, advocating for our 4+1 program, using our Math Competition to market our undergraduate programs to High School students and our graduate program to their teachers, and be flexible in modality and time in offering our graduate courses.
- Delivered the laudation at the professorial inaugural lecture of Professor Elizabeth Jonck at the University of the Witwatersrand (2022).
- The Department also houses a highly successful Master of Science program in Data Science. The program admits students in cohorts. Moreover, students also need to complete capstone projects at various companies in Wilmington.
- Assisted in the external review of the Master's of Mathematics degree.
- Led the effort to transition UNCW to use Aleks as the Math Placement Tool.
- CSURFs advisory board (AY 2024-2025).
- Faculty Senate's Academic Standards Committee for the 2024–2025 academic year.

V.   TEACHING EXPERIENCE (ACADEMIC)

Masters and Doctoral Students

- Mr. A. Barnard, M.Sc. (Mathematics) (1990) Die grafiek-isomorfie probleem. (Served as co-supervisor with Prof. A. Buys as supervisor.)

- Mr. A. Barnard, M.Sc. (Computer Science) (1991) 'n Verdere uitbreiding van struktuurgrafiekgrammatikas. (Served as co-supervisor with Prof. E. Ehlers as supervisor.)
- Miss. E. Jonck, M.Sc. (1992) Kompleksiteitsaspekte van veralgemeende dominasieparameters.
- Mr. J. C. Schoeman, M.Sc. (1993) 'n Ry boonste en onderste dominasie-onafhanklikheids- en onoorbodigheidsgetalle van 'n grafiek.
- Mr. R. van der Merwe, M.Sc. (Computer Science) (1993) The use of fractals, wavelet coding and learning automata in image compression. (Served as co-supervisor with Prof. E. Ehlers as supervisor.)
- Mr. F. A. Lategan, M.Sc. (1995) Complexity aspects of certain graphical parameters.
- Mr. V. Vuong, M.S. (1999) Domination in graph with bounded degrees.
- Dr. E. Ungerer, Ph.D. (1996) Aspects of signed and minus domination in graphs.
- Dr. L.M. Harris, Ph.D. (2003) Aspects of functional variations of domination graphs. (Served as co-supervisor with Prof. M.A. Henning at the University of KwaZulu-Natal)
- Mr. Andrew R. Plummer M.S. (2006) Characterizations in domination theory.
- Dr. E.J. Joubert, Ph.D. (2008) Aspects of total restrained domination in graphs. (Served as co-supervisor with Prof. E. Jonck at the University of Johannesburg)
- Dr. C. J. Ras, Ph.D. (2008) Lambda_{d,1}$-minimal trees and full colorability of some classes of graphs. (Served as co-supervisor with Prof. E. Jonck University of Johannesburg)
- Ms. Ann Clifton M.A. (2013) Irredundant and Mixed Ramsey Numbers.
- Dr. R.J. Maartens, Ph.D. (2022) The k-Ramsey number for cycles (Served as co-supervisor with Prof. E. Jonck at the University of the Witwatersrand)
- Mr. Saxton Wilson, M.S. (2022) Irredundant and Mixed Ramsey Numbers.
- Dr. Oscar Nkuna, Ph.D. (2025) Packing chromatic numbers of regular graphs (Served as co-supervisor with Prof. E. Jonck at the University of the Witwatersrand).
- Dr. De Villers Lessing, Ph.D. (2025) Packing chromatic numbers of the infinite grid (Served as co-supervisor with Prof. E. Jonck at the University of the Witwatersrand).

I was the external examiner of the following Masters' theses:

- "Euclidean Ramsey Theory" by K.J. Swanepoel, University of Pretoria, 1993.
- "Parameters related to fractional domination in graphs" by D.E. Erwin, University of Natal, Durban, 1995.
- "Domination in graphs with bounded degree" by S. Dorfling, University of Johannesburg, 1998.

- "L(d, 1)-labelings in graphs," by N. Botha, University of Johannesburg, 2006.
- "Acyclic colourings of planar graphs'' by FS Raubenheimer, University of Johannesburg, 2011.
- "A distributed system for enumerating main classes of sets of mutually orthogonal Latin squares" by JG Benade, University of Stellenbosch, 2014.

 I was the external examiner of the following PhD dissertations:

- "Computational Aspects of some generalised domination parameters" by D.I. Carson, University of Natal, Durban, 1993.
- "The axial line placement problem" by I.D. Sanders, University of Pretoria, 2002.
- "Stratification and domination in graphs," by J.E. Maritz, University of Kwa-Zulu Natal, Pietermaritzburg, 2006.
- "A Study of Strong (Weak) Domination and related concepts in graphs", by Ravi Shankar Bhat, National Institute of Technology Karnataka, 2007.
- "A study between certain combinatorial connections between distances and valuations in graphs" by Raghunath P, Visvesvaraya Technological University, 2007.
- "Studies in graph theory – equitable domination and bottleneck domination" by K.M. Dharmalingham, Madurai Kamaraj University, 2007.
- "Some advances in domination and colourings of graphs" by Udaya Kumar K. Shenoy, National Institute of Technology, Karnataka, 2009.
- "Domination in circulant graphs" by I. Rani, Manonmaniam Sundaranar University, 2009.
- "A study on domination in graphs" by G.S. Grace Prema, Manonmaniam Sundaranar University, 2009.
- "Certain classes of colorings in graphs" by N. Narahari, Visvesvaraya Technological University, 2017.
- "Characterizations of graphs with given maximum degree and smallest possible matching number" by Z. B. Shozi, University of Johannesburg, 2021.
- "A meta-learning framework for link prediction algorithm selection based on network structure analysis" by L.M. Brown, University of Stellenbosch, 2024.

I served on the following graduate students' committees:

- MS Thesis Committees: Nhi Tu Vuong (2000), Tran Nguyen (2002), Syrah O. Paul (2003), Thomas Hippchen (2008), Albert Bush (2009), Yi Zhu (2011), Miciah Dashiel Butler Masters (Computer Science) (2012)
- PhD Dissertation Committee: Liang Cheng (Computer Science) (2007)

I reviewed the requests for upgrade to PhD status by two MS students (J.P. McCoy and J.G. Southey) of the University of Kwa-Zulu Natal (2009).

Courses

- Numerical Analysis, 1988, Applied Math 2, University of Pretoria (UP)
- Graph Theory, 1989, Math Honours, UP
- Abstract Algebra, 1989, 1990, 1991, Math 3, University of Johannesburg (UJ)
- Graph Theory, 1993, 1994, 1996, Math Honours, UJ
- Computational Theory , 1990, Masters, UJ
- Calculus, 1990, 1991, 1994, Math I, UJ
- Abstract Algebra, 1991, 1992, Math Honours, UJ
- Discrete Mathematics, 1991, 1992, 1996, Math 3, UJ
- Numerical Analysis, 1992., Computer Science 2, UJ
- Real Analysis and Abstract Algebra , 1992, 1993, Math 3, UJ
- Complex Analysis and Discrete Mathematics, 1993, Math 3, UJ
- Algorithmic Graph Theory, 1994, 1996, Math Honours, UJ
- Theory of Computation , 1995, CPSC 450/650, Clemson Univ
- Theory of Computation , 1995, Math Honours, UJ
- Real Analysis , 1995, 1996, Math 3, UJ
- Theory of Computation, 1997, CPSC 350, Clemson Univ
- Theory of Computation, 1997, CPSC 859, Clemson Univ
- Discrete Mathematics , 1997, 1998, Math 220, Georgia State Univ (GSU)
- Number Theory, 1997, 1998, Math 450/650, GSU
- The Construction of the real number system, 1997, Math 711, GSU
- Discrete Mathematics, 1998,1999, 2000, 2001, 2002, 2003,2009, Math 2420, GSU
- Modern Algebra , 1998, 2000, 2001, 2003, 2004, Math 6441/4441, GSU
- Calculus, 1999, Math 2211, GSU
- Algorithmic Graph Theory , 1999, CSC 8520, GSU
- Intermediate Linear Algebra, 1999, Math 4435/6435, GSU
- College Algebra, 2001, 2002, Math 1111, GSU
- Graph Theory, 2003, 2008, 2010, Math 4420/6420, GSU
- Precalculus, 2003, Math 1113, GSU
- Graph Theory, 2005, Math 8420, GSU
- Redesigned College Algebra, 2006, Math 1111, GSU (I also served as course coordinator.)
- Redesigned College Algebra, 2009, Math 1111, GSU.
- Mathematical Modeling, 2009, Math 1101, GSU.
- Elementary Statistics, 2009, 2010, Math 1070, GSU (I also served as course coordinator.)
- Introduction to Statistics, 2010, Math 4547/6547, GSU
- Introduction to Statistics, Georgia On My Line, Math 6547, GSU
- Modern Algebra, 2011, Math   3263, ECU.
- Special Topics: Graph Theory, 2011, 2015 Math 6500, ECU.

- College Algebra, 2012, Math 1065, ECU (taught a redesigned section of Math 1065), Math 1065 (online).
- Calculus 1, 2019 Math 2171, ECU.
- Transitions to Higher Mathematics, 2014, 2015 Math 2300, ECU.
- Graph Theory, 2016, 2020 Math 6050, ECU.
- Elementary Statistics, 2020, 2021 Mat 215, UNCW.
- Graph Theory, 2021, UNCW
- Basic Calculus with Applications I, UNCW, 2022.
- Axiomatic System, UNCW, 2023, 2024, 2025

VI. RESEARCH AND PROFESSIONAL ACTIVITIES (ACADEMIC)

Publications – Journal Articles

- The edge-chromatic number of a circulant, Quaestiones Mathematica 11 (1988) 371 - 381.
- (with I. Broere) Products of circulant graphs, Quaestiones Mathematica 13 (1990) 191 - 216.
- (with E.J. Cockayne, J. Kok and C.M. Mynhardt) Mixed Ramsey numbers and irredundant Turán numbers for graphs, Ars Combinatoria 29 (1990) 57 - 68.
- On irredundant Ramsey numbers for graphs, Journal of Graph Theory 14 (1990) 437 - 441.
- (with I. Broere) The chromatic index of an abelian Cayley graph, Ars Combinatoria 31 (1991) 312 - 316.
- (with E.J. Cockayne and C.M. Mynhardt) The irredundant Ramsey number s(3,7), Utilitas Mathematica 39 (1991) 145 - 160.
- (E.J. Cockayne, G. Exoo and C.M. Mynhardt) The irredundant Ramsey number s(4,4), Utilitas Mathematica 41 (1992) 119 - 128.
- (with M.A. Henning) The complexity of upper distance irredundance, Congressus Numerantium 91 (1992) 107 - 115.
- (with A. Barnard and E.M. Ehlers) A further extention of structure graph grammars, Information Sciences 73 (1993) 235-271.
- (with G. Chen and C.C. Rousseau) Asymtotic bounds for irredundant and mixed Ramsey numbers, Journal of Graph Theory 17 (1993) 193 - 206.
- (with P. Erdös) Asymtotic bounds for irredundant Ramsey numbers, Quaestiones Mathematica 16 (1993) 319-331.
- (with M.A. Henning) A characterization of block graphs that are well-k-dominated, Journal of Combinatorial Mathematics and Combinatorial Computing 13 (1993) 33 - 38.
- (with M.A. Henning and J.L. Walters) On the complexity of distance upper fractional domination, Australasian Journal of Combinatorics 7 (1993) 133-144.

- (with M.A. Henning) The ratio of distance irredundance and domination numbers, Journal of Graph Theory 18 (1994) 1 - 9.
- (with M.A. Henning and P.J. Slater) Minus k-neighbourhood domination in graphs, The Australasian Journal of Combinatorics 9 (1994) 233-242.
- (with I. Broere) On the construction of self- complementary circulant graphs, Graph Theory, Combinatorics and Applications John Wiley and Sons 1 (1995) 123-129.
- (with I. Broere, M.A. Henning and A.A. McRae) Majority domination in graphs, Discrete Mathematics 138 (1995) 125-135.
- (with M.A. Henning) Distance irredundance in graphs Graph Theory, Combinatorics and Applications John Wiley and Sons 1 (1995) 529-541.
- (with M.A. Henning and P.J. Slater) The algorithmic complexity of signed domination in graphs, The Australasian Journal of Combinatorics 12 (1995) 101-112.
- (with E. J. Cockayne, S.M. Hedetniemi, S.T. Hedetniemi and A.A. McRae) Using maximality and minimality conditions to construct inequality chains, Discrete Mathematics 176 (1997) 43-61.
- (with J.E. Dunbar, J.W. Grossman, S.T. Hedetniemi and A.A. McRae) On weakly-connected domination in graphs, Discrete Mathematics 167-168 (1997) 261-269.
- (with J.E. Dunbar, P.J. Slater and A.A. McRae) Efficient coverage of edge sets in graphs, Utilitas Mathematica 51 (1997) 183-192.
- Majority domination and its generalisations, Domination in graphs: Advanced topics Marcel-Dekker Inc. (1997), 91-108.
- (with E. Ungerer) Minus k-subdomination in graphs II, Discrete Mathematics 171 (1997) 141-151.
- (with I. Broere and J.E. Dunbar) Minus k-subdomination in graphs, Ars Combinatoria 50 (1998) 177-186.
- (with M. A. Henning) Star-bipartite Ramsey numbers, Discrete Mathematics 185 (1998) 255-258.
- (with M.A. Henning) Bipartite Ramsey Theory, Utilitas Mathematica 53 (1998) 217-230.
- (with M. A. Henning) On strong domination in graphs, Journal of Combinatorial Mathematics and Combinatorial Computing 26 (1998), 73-82.
- (with M.A. Henning and E. Ungerer) Partial signed domination in graphs, Ars Combinatoria 48 (1998) 33-42.
- (with M.A. Henning and J.L Walters) Distance irredundance in graphs: complexity issues, Ars Combinatoria 50 (1998) 3-22.
- (with R.C. Laskar) On weak domination in graphs, Ars Combinatoria 49 (1998) 205-216.
- (with A.A. McRae and E. Ungerer) Minus k-subdomination in graphs III, Australasian Journal of Combinatorics 17 (1998), 69-76.

- (with A.A. McRae and E. Ungerer) The minus bondage number of a graphs, Proceedings of the Eighth Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications II (1998) 491-503.
- (with E. Ungerer) The signed and minus k-subdomination numbers of comets, Discrete Mathematics 183 (1998) 141-152.
- (with E. Ungerer) On the signed k-subdomination number of trees, Proceedings of the Eighth Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications II (1998)479-490.
- (with G. Chen, G.S. Domke and R.C. Laskar) On the upper line-distinguishing and upper harmonious chromatic numbers of a graph, Journal of Combinatorial Mathematics and Combinatorial Mathematics 31 (1999) 227-239.
- (with G.S. Domke, S.T. Hedetniemi, R.C. Laskar and L.R. Markus) Restrained domination in graphs, Discrete Mathematics 203 (1999) 61-69.
- (with J.E. Dunbar, R.C. Laskar and L.R. Markus) Induced clique domination in graphs, Ars Combinatoria 52 (1999) 129-139.
- (with G.S. Domke, M.A. Henning and L.R. Markus) Restrained domination in trees, Discrete Mathematics 211(2000) 1-9.
- (with G.S. Domke, M.A. Henning and L.R. Markus) Restrained domination in graphs with minimum degree two, Journal of Combinatorial Mathematics and Combinatorial Computing 35(2000) 239-254.
- (with G.S. Domke and L.R. Markus) On the number of edges in a graph with given domination-type parameters, Journal of Combinatorial Mathematics and Combinatorial Computing 33 (2000) 23-32.
- (with M.A. Henning) Characterizations of trees with equal domination parameters, Journal of Graph Theory 34 (2000) 142-153.
- (with L.M. Harris and E. Ungerer) The signed and minus k-subdomination number of certain multipartite graphs and their complement, Utilitas Mathematica 59 (2001) 77-95.
- (with G.S. Domke, L.R. Markus and E. Ungerer) On parameters related to strong and weak domination in graphs, Discrete Mathematics 258 (2002) 1-11.
- (with D. Rautenbach) Further results on weak domination in graphs, Utilitas Mathematica 61 (2002) 193-207.
- (with M.A. Henning and E. Ungerer) The upper line-distinguishing and upper harmonious chromatic numbers of a cycle, Journal of Combinatorial Mathematics and Combinatorial Computing 45 (2003) 139-146.
- (with M.A. Henning and E. Ungerer) Graphs with small upper line-distinguishing and upper harmonious chromatic numbers, Journal of Combinatorial Mathematics and Combinatorial Computing 47 (2003) 165-181.

- (with P. Dankelmann, G.S. Domke, W. Goddard, P. Grobler and H.C. Swart) Maximum sizes for domination parameters, Discrete Mathematics 281 (2004) 137-148.
- (with L.M. Harris) The algorithmic complexity of certain functional variations of total domination in graphs, Australasian Journal of Combinatorics 29 (2004) 143-156.
- (with I. Broere, M. Dorfling, W. Goddard, M.A. Henning and E. Ungerer) Augmenting trees to have two disjoint total dominating sets, The Bulletin of the Institute of Combinatorics and its Applications 42 (2004) 12-18.
- (with L.M. Harris) The algorithmic complexity of certain functional variations of total domination in graphs, Australasian Journal of Combinatorics 29 (2004) 143-156.
- (with G.S. Domke and L.R. Markus) On weakly connected domination in graphs II, Discrete Mathematics 305 (2005) 112-122.
- (with W. Goddard and M.A. Henning) Augmenting a graph of minimum degree 2 to have two disjoint total dominating sets, Discrete Mathematics 300 (2005) 82-90
- (with P. Dankelmann, M. A. Henning and H. C. Swart) Trees with equal domination and restrained domination numbers, Journal of Global Optimization 34 (2006), 597-607.
- (with L.M. Harris and M.A. Henning) Total k-subdominating functions on graphs, Australasian Journal of Combinatorics, 35 (2006) 141-154.
- (with L.M. Harris and M.A. Henning) Algorithmic aspects of total k-subdomination in graphs, Discussiones Mathematicae Graph Theory 26(1) (2006) 5-18.
- (with L.M. Harris and M.A. Henning) Algorithmic aspects of minus total k-subdomination in graphs, Australasian Journal of Combinatorics 36 (2006) 101-111.
- (with E. Jonck and C. Ras) The L(d,1)-hole index of paths and cycles, Utilitas Mathematica 69 (2006) 55-64.
- (with P. Dankelmann, D. Day, M. A. Henning, L R. Markus and H. C. Swart) On equality in an upper bound for the restrained and total domination numbers of a graph, Discrete Mathematics 307 (2007) 2845-2852.
- (with E. Jonck, E. Joubert and A.R. Plummer) Total restrained domination in trees, Discrete Mathematics 307 (2007) 1643-1650.
- Restrained Domination in Graphs, Proceedings of ICDM, 2006: in Ramanujan Mathematical Society Lecture Note Series 7 (2008) 217-226.
- (with M.A. Henning) Restrained domination excellent trees, Ars Combinatoria 87 (2008) 337-351.
- (with E. Jonck, E. J. Joubert and A.R. Plummer) Nordhaus-Gaddum results for restrained domination and total restrained domination in graphs, Discrete Mathematics 308 (2008) 1080 – 1087.

- (with E. Jonck and L.R. Markus) A note on the weakly connected subdivision number of a graph, The Bulletin of the Institute of Combinatorics and its Applications 53 (2008) 99-107.
- (with A. R. Plummer) Restrained bondage in graphs, Discrete Mathematics 308 (2008) 5446-5453.
- (with A.R. Plummer and H.M. Xing) On the domination number of hamiltonian graphs, Applied Mathematics Letters 21 (2008) 1037-1040.
- (with R. Gera, N. Jafari Rad, E.J. Joubert and L. van der Merwe) Vertex and edge critical total restrained domination in graphs, The Bulletin of the Institute of Combinatorics and its Applications 57 (2009) 107-117.
- (with M.A. Henning) Bounds relating the weakly connected domination number to the total domination number and the matching number, Discrete Applied Mathematics 157 (2009) 3086-3093.
- (with E. Jonck and C.J. Ras) A class of full (d,1)-colorable trees, Australasian Journal of Combinatorics 45 (2009) 277-289.
- (with E. Jonck and C.J. Ras) L(d,1)-minimal trees, Discrete Mathematics 309 (2009) 2340-2348.
- (with E.J. Joubert) An upper bound for the restrained domination number of a graph with minimum degree at least two in terms of order and minimum degree, Discrete Applied Mathematics 157 (2009) 2846–2858.
- (with E.J. Joubert) Restrained domination in claw-free graphs with minimum degree at least two, Graphs and Combinatorics 25 (2009) 693–706.
- (with E. J. Joubert, M. Loizeaux, A. R. Plummer and L. van der Merwe) Restrained domination in unicyclic graphs, Discussiones Mathematicae Graph Theory 29 (2009) 71-86.
- Restrained and total restrained domination in graphs, Notices of the South African Mathematical Society 41 (2010) 2-15.
- (with E. Jonck and E.J. Joubert) Bounds on the total restrained domination number of a graph, Graphs and Combinatorics 26 (2010) 77–93.
- (with E. Jonck and E.J. Joubert) An upper bound on the total restrained domination number of a tree, Journal of Combinatorial Optimization 20 (2010) 205-223.
- (with E. Jonck, E.J. Joubert and A. R. Plummer) Total restrained domination in unicyclic graphs, Utilitas Mathematica 82 (2010) 81-96.
- (with E.J. Joubert) A note on the total outer-connected domination number of a tree, AKCE International Journal of Graphs and Combinatorics 7 (2010) 223-227.
- (with A.R. Plummer) A note on restrained domination in trees, Ars Combinatoria 94 (2010) 477-483.
- (with E.J. Joubert) Restrained domination in cubic graphs, Journal of Combinatorial Optimization 22 (2011) 166-179.

- (with N. Jafari Rad, S. Heidar Jafari, M. Loizeaux, J. Matthews, L. C. van der Merwe), Total edge critical graphs with leaves, Discrete Mathematics 312 (2012) 3482-3488.
- (with E. J. Joubert and L. van der Merwe) The criticality index of total domination of a path, Utilitas Mathematica 87 (2012) 285-292.
- (with O. Saleh, L C. van der Merwe and T. Walters) A Nordhaus-Gaddum type result for the path induced path number, Journal of Combinatorial Optimization 24 (2012) 329-338.
- (with O. Saleh, L C. van der Merwe and T. Walters) Nordhaus-Gaddum results for the sum of the induced path number of a graph and its complement, Acta Mathematica Sinica 28 (2012) 2365–2372.
- (with O. Saleh, L C. van der Merwe and T. Walters) Nordhaus-Gaddum type results for the induced path number with relative complements in K_{m,n}, Journal of Combinatorial Mathematics and Combinatorial Computing 85 (2013) 365-377.
- (with A.P. Burger and J.H. van Vuuren) The mixed irredundant Ramsey numbers t(3,7)=18 and t(3,8)=22, Quaestiones Mathematicae 37 (2014) 571-589.
- (with E.J. Joubert) The product of the restrained domination numbers of a graph and its complement, Acta Mathematica Sinica 30 (2014) 445-452.
- (with E.J. Joubert) Some bistar bipartite Ramsey Numbers, Graphs and Combinatorics 30 (2014) 1175-1181.
- (with O. Saleh, L C. van der Merwe and T. Walters) Product Nordhaus-Gaddum type results for the induced path number with relative complements in K_n or K_{n,n}, Utilitas Mathematica 94 (2014) 275-285.
- (with M. Dorfling and E. Jonck) Total domination in maximal outerplanar graphs II, Discrete Mathematics 339 (2016) 1180-1188.
- (with E.J. Joubert) Equality in a bound that relates the size and the restrained domination number of a graph, Journal of Combinatorial Optimization 31 (2016) 1586-1608.
- (with E. Hilgoe, J. Brinkley and R. Bernhardt) The Effectiveness of the North Carolina Early Mathematics Placement Test In Preparing High School Students for College-Level Introductory Mathematics Courses, College Student Journal 50 (3) (2016) 369-377.
- (with O. Saleh, L C. van der Merwe and T. Walters) Product Nordhaus-Gaddum results for the induced path number of a graph when neither the graph nor its complement contains isolates, Graphs and Combinatorics 32 (2016) 987-996.
- (with M. Dorfling and E. Jonck) Total domination in maximal outerplanar graphs I, Discrete Applied Mathematics 217 (2017) 506-511.
- (with L.M. Harris and M.A. Henning) Further results on total k-subdominating function in trees, Journal of Combinatorial Mathematics and Combinatorial Computing 104 (2018) 65-73.

- (with E.J. Joubert) The product of the total restrained domination numbers of a graph and its complement, Australasian Journal of Combinatorics 70 (2018) 297-308.
- (with E.J. Joubert) Some multicolor bipartite Ramsey numbers involving cycles and a small number of colors, Discrete Mathematics 341 (2018) 1325-1330.
- (with E. J. Joubert) Restrained and Total Restrained Domination in Graphs. In: T.W. Haynes, S.T. Hedetniemi M.A. Henning (eds) Topics in Domination in Graphs. Developments in Mathematics 64 (2020) Springer, Cham. https://doi.org/10.1007/978-3-030-51117-3_5
- (with E. Jonck and R.J. Maartens) The k-Ramsey number of two five cycles, AKCE International Journal of Graphs and Combinatorics, 21 (2023) 57–62.
- (with E.J. Joubert) Bipartite Ramsey number pairs involving cycles, Discussiones Mathematicae Graph Theory, 45 (2025) 151-190.
- (with A.W. Clifton, E. Jonck and O. Nkuna) Lower Bounds for the Packing Chromatic Number, submitted.

Professional Presentations

- Annual meeting of the SAMS, Pretoria, S Africa, 1985 (with J. Heidema) Relatiewe semantiese afleibaarheid.
- Graph Theory Workshop, Pretoria, S Africa, 1988 (with I. Broere) Products of circulant graphs.Annual meeting of the SAMS, Stellenbosch, S Africa, 1988
- The edge-chromatic number of a circulant. Annual meeting of the SAMS, Stellenbosch, S Africa, 1988 (with I. Broere)
- Hamilton properties and the chromatic index of an abelian Cayley graph.
- Annual meeting of the SAMS, Bloemfontein, S Africa, 1990 On irredundant Ramsey numbers for graphs.
- 21st SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1990 (with E.J. Cockayne and C.M. Mynhardt) The irredundant Ramsey number s(3,7).
- 255th Anniversary of Graph Theory, Durban, S Africa, 1991 (with G. Chen and C.C. Rousseau) Asymtotic bounds for irredundant and mixed Ramsey numbers.
- Annual meeting of the SAMS, Mmbatho, S Africa, 1991 Lower bounds for diagonal irredundant Ramsey numbers.
- 23rd SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1992 (with M.A. Henning) Distance irredundance in graphs: complexity issues.
- 18th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing, Perth, Australia, 1992 (with M.A. Henning) Distance irredundance number versus distance domination number.

- Annual meeting of the SAMS, Cape Town, S Africa, 1992 (with M.A. Henning) Distance irredundance number versus distance domination number.
- 24th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1993 (with M.A. Henning and J.C. Schoeman) On a sequence of generalised domination numbers.
- Annual meeting of the SAMS, Pretoria, S Africa, 1993 (with M.A. Henning and J.L. Walters) On the computational complexity of upper distance fractional domination.
- Annual meeting of the SAMS, Pretoria, S Africa, 1993 (with P. Erdös) Asymtotic bounds for irredundant Ramsey numbers.
- 9th Mini-conference on Discrete Mathematics, Clemson, SC, USA, October 1994 Majority domination and its generalisations (this was an invited talk).
- 26th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1995 (with R.C. Laskar) On weak domination in graphs.
- 15th British Combinatorial Conference, Stirling, UK, 1995 (with J.E. Dunbar, J. W. Grossman, S.T. Hedetniemi and A.A. McRae) On weakly-connected domination in graphs.
- Eighth International Conference on Graph Theory. Combinatorics, Algorithms and Applications, Kalamazoo, MI, USA, June 1996 (with E. Ungerer) On signed k-subdomination in graphs.
- Annual meeting of the SAMS, Bellville, S Africa, 1996 (with J.E. Dunbar, A. A. McRae and P.J. Slater) Efficient coverage of edge sets in graphs.
- 28th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1997 (with J. E. Dunbar, A. A. McRae and P. J. Slater) Efficient coverage of edge sets in graphs.
- 29th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1998 (with G. S. Domke, M. A. Henning and L. R. Markus) Restrained domination in trees.
- 29th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 1998 (with G. S. Domke, S.T. Hedetniemi, R.C. Laskar and L. R. Markus) Restrained domination in graphs.
- 11th Cumberland Conference on Graph Theory, Combinatorics, and Computing, Johnson City, TN, USA, 1998 (with D. Rautenbach) On weak domination in graphs II.
- 11th Cumberland Conference on Graph Theory, Combinatorics, and Computing, Johnson City, TN, USA, 1998 (with G.S. Domke, L.R. Markus and E. Ungerer) Gallai-type theorems for strong and weak domination parameters.
- Annual meeting of the SAMS, Pietersburg, S Africa, 1999 (with G. Chen, G.S. Domke and R.C. Laskar) On line-distinguishing and harmonious colorings of a graph.

- 5th Annual Mini-Conference on Graph Theory, Boone, NC, USA, 2000 (with E. Ungerer) On line-distinguishing and harmonious colorings of a graph II.
- 9th Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications, Kalamazoo, MI, USA, 2000 (with I. Broere, M. Dorfling and E. Ungerer) Partitioning a tree into two restrained dominating sets.
- 15th Clemson mini-Conference on Discrete Mathematics, Clemson, SC, USA, 2000 A Survey of Minus and Signed Domination in Graphs (this was an invited talk).
- South African International Graph Theory Conference, Ithala Game Reserve, S Africa, 2001 An overview of restrained domination in graphs (this was an invited talk).
- Regional meeting of the AMS, Chattanooga, TN, USA, 2001(with M.A. Henning and E. Ungerer) Graphs with small upper line-distinguishing and upper harmonious chromatic numbers (this was an invited talk).
- Regional meeting of the AMS, Atlanta, GA, USA, 2002 (with I. Broere, M. Dorfling, W. Goddard, M.A. Henning and E. Ungerer) Graphs with two disjoint total dominating sets (this was an invited talk)
- DCI '02 Research Program, DIMACS, Rutgers University, Piscataway, NJ, USA, 2002 (with L. Harris) The algorithmic complexity of certain functional variations of total domination in graphs (I was invited to attend).
- Joint MAA-SAIM Meeting at Clemson University, Clemson, SC, USA, 2003 (with L. Harris and M.A. Henning) Total k-subdominating functions on graphs (this was an invited talk).
- 19th British Combinatorial Conference, Bangor, UK, 2003 (with L. Harris and M.A. Henning) Algorithmic aspects of total k-subdomination in graphs.
- 35th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 2004 (with G. S. Domke and L. R. Markus) On weakly connected domination in graphs II.
- 28th annual SIAM Southeastern Atlantic Section Meeting, Johnson City, TN, USA, 2004 (with G. S. Domke and L. R. Markus) On weakly connected domination in graphs II (I was invited to attend).
- 36th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 2005 (with P. Dankelmann, M. A. Henning and H. C. Swart) Trees with equal domination and restrained domination numbers.
- 18th Cumberland Conference on Graph Theory, Combinatorics, and Computing, Huntsville, AL, USA, 2005 (with E. Jonck and C. Ras) The-hole index of paths and cycles (I was invited to be a principal speaker)
- 37th SE International Congress on Combinatorics, Graph Theory and Computing, Boca Raton, FL, USA, 2006 (with E. Jonck, E.J. Joubert and A.R. Plummer) Total restrained domination in trees.

- 19th Cumberland Conference on Graph Theory, Combinatorics, and Computing, Johnson City, TN, USA, 2006 (with E. Jonck, E.J. Joubert and A.R. Plummer) Nordhaus-Gaddum results for restrained domination and total restrained domination in graphs.
- International Conference on Discrete Mathematics (ICDM 2006), Bangalore, India, December 2006, Total restrained domination in graphs (this was an invited talk).
- The 23rd Mini-Conference on Discrete Mathematics and Algorithms, Clemson, SC, USA, October 2008, Some Recent Results on Restrained Domination (this was an invited talk).
- 2008 Fall Southeastern Meeting of the AMS, University of Alabama, Huntsville, Huntsville, AL (with E.J. Joubert), An upper bound for the restrained domination number of a graph with minimum degree at least two in terms of order and minimum degree (this was an invited talk).
- 52nd Annual Meeting of the South African Mathematical Society, University of Johannesburg, Johannesburg, South Africa, November 2009, Restrained domination in graphs (this was a plenary talk).
- 43rd Southeastern International Conference on Combinatorics, Graph Theory and Computing, Baco Raton, FL, USA 2012, Irredundant and Mixed Ramsey Numbers.
- 44th Southeastern International Conference on Combinatorics, Graph Theory and Computing, Baco Raton, FL, USA 2013 (with E.J. Joubert), The product of the restrained domination numbers of a graph and its complement.
- 26th Cumberland Conference on Graph Theory, Combinatorics, and Computing, Mufreesboro, TN USA, 2013, The irredundant Ramsey number s(3,8).
- 9th International colloquium on graph theory and combinatorics, Grenoble, France, 2014 (with E.J. Joubert), Equality in a Bound that Relates the Size and the Restrained Domination. (I also chaired a session at this conference.)
- Recent Advances in Linear Algebra and Graph Theory, Chattanooga, Tennessee, March 2016 (with M. Dorfling and E. Jonck) Total domination in maximal outerplanar graphs II.
- 26th British Combinatorial Conference, Glasgow, United Kingdom, July 2017 (with E.J. Joubert), Some multicolor bipartite Ramsey numbers involving cycles and a small number of colors.
- 60th Annual Congress of the South African Mathematical Society, Potchefstroom, South Africa, November 2017 (with E.J. Joubert), Some multicolor bipartite Ramsey numbers involving cycles and a small number of colors.
- The 33rd Mini-Conference on Discrete Mathematics and Algorithms, Clemson, SC, USA, October 2018, Total Domination in Maximal Outerplanar Graph (this was an invited talk).

- 61st Annual Congress of the South African Mathematical Society, Grahamstown, South Africa, November 2018, Total Domination in Maximal Outerplanar Graphs.
- 62nd Annual Congress of the South African Mathematical Society, Cape Town, South Africa, December 2019, The product of the total restrained domination numbers of a graph and its complement.
- International Conference on Discrete Mathematics (ICDM 2021), Tirunelveli, India, October 2021, Recent results on the total domination number of maximal outerplanar graphs (this was an invited talk).
- 30th British Combinatorial Conference, London, United Kingdom, July 2024 (with E. Jonck and R.J. Maartens) The k-Ramsey number of two five cycles.

Editorial/Reviewer Projects

I reviewed the following books for publishers: Ferland's "Discrete Mathematics" for Addison-Wesley (2001), material from a new Discrete Mathematics text for Prentice-Hall (2001), Ross and Wright's "Discrete Mathematics" for Prentice-Hall (2002), Rosen's "Discrete Mathematics and its Applications" for McGraw-Hill (2002), Ferland's "Discrete Mathematics' for Houghton-Mifflin (2004), the second edition of "Introduction to Graph Theory" by Doug West (2006), and "Concepts and Methods" by Monrad et. al. for Mobius Publishing, Ltd.

I was a referee for the following journals:

- Acta Mathematica Sinica
- AKCE International Journal of Graphs and Combinatorics
- Annals of Combinatorics
- Applied Mathematics Letters
- Applicable Analysis and Discrete Mathematics
- Ars Combinatoria
- The Australasian Journal of Combinatorics
- The Computer Journal
- Computers and Mathematics with Applications
- Discrete Applied Mathematics
- Discrete Mathematics
- Discrete Mathematics and Theoretical Computer Science
- Discrete Optimization
- Discussiones Mathematicae Graph Theory
- The Electronic Journal of Combinatorics
- Graphs and Combinatorics,
- Information Processing Letters
- Indian Journal of Science and Technology
- Journal of Combinatorial Mathematics and Combinatorial Computing,
- Journal of Combinatorial Optimization

- Journal of Graph Theory
- Journal of Integer Sequences
- Journal of Mathematical Research with Applications
- Mathematica Slovaca
- Theory of Computing Systems
- Transactions on Combinatorics
- Quaestiones Mathematicae
- SIAM Journal on Discrete Mathematics
- The South African Computer Journal
- Transactions on Combinatorics
- Utilitas Mathematica.

I served as a grant reviewer for the South African National Research Foundation on several occasions.

I served as a grant reviewer for NSA on several occasions.

External Reviewer for Tenure and/or Promotion to Associate/Full Professor at Indiana University Purdue University at Fort Wayne (1993), Universiti Sains Malaysia (2010), University of Johannesburg (2011), Southern Polytechnic State University (2013) and University of Zimbabwe (2014).

 Grants and External Funding

- Y-researcher, Foundation of Research Development , August 1990 - July 1994
- President's Award, Foundation of Research Development, August 1994 - March 1998 $125,000 (PI)
- Travel grant to speak at the South African International Graph Theory Conference, Ithala Game Reserve, S Africa, 2001
- Travel grant to speak at DCI '02 Research Program, DIMACS, Rutgers University, Piscataway, NJ, USA, 2002.
- Travel grant to be attend a workshop on Graph Theory at the Ithala Game Reserve, S Africa, 2003.
- Travel grant to visit the University of KwaZulu Natal during May/June 2004.
- Travel grant from the Indo-US Science and Technology Forum, New Delhi, to give an invited talk at the International Conference on Discrete Mathematics (ICDM 2006), from 15–18 December 2006 hosted by the Indian Institute of Science, Bangalore, India.
- Travel grant to speak at the 23rd Mini-Conference on Discrete Mathematics and Algorithms, Clemson, SC ,USA, October 2008.
- Travel grant to speak the 52nd Annual Meeting of South African Mathematical Society, November 2009.

- UNC System Office Math Pathways Grant (co-PI), Remediation of Underprepared Students in College Algebra.
- Chair Reassignment Award, Spring 2021, UNCW

VII. PROFESSIONAL AND HONOR ORGANIZATION ACTIVITIES

I am a member of the American Mathematical Society, the South African Mathematical Society and a Fellow of the Institute of Combinatorics and its applications.

VIII. HONORS, AWARDS AND RECOGNITION

- President's Award, Foundation of Research Development, August 1994 - March 1998
- Fellow of the Institute of Combinatorics and its applications

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