

SEAN MCGUINNESS

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EDUCATION **UNIVERSITY OF WATERLOO**, Waterloo, Ontario, Canada
Ph.D, Mathematics, 1988

QUEEN'S UNIVERSITY, Kingston, Ontario, Canada
Master of Science, Mathematics, 1984

ACADIA UNIVERSITY, Wolfville, Nova Scotia, Canada
Bachelor of Science(Honours), Mathematics, 1982.

EXPERIENCE **THOMPSON RIVERS UNIVERSITY**, Kamloops, BC
Asst. Prof., 3-year limited term, Aug.1, 2007 - Aug. 1, 2010
Asst. Prof., Aug.1, 2010 - Aug.1, 2011
Assoc. Prof., Aug.1, 2011 -

DARTMOUTH COLLEGE, Hanover, NH
Visiting Assistant Professor, Sept. 2006 - June 2007

ADELPHI UNIVERSITY, Garden City, NY
Assistant Professor, Sept. 2002 - Aug. 2004

UNIVERSITY OF MONTANA, Missoula, MT
Guest Professor, Sept. 2001 - June 2002

UNIVERSITY OF UMEÅ, Umeå, Sweden
Lektor, Docent, 1993 - 2002

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UNIVERSITY OF SOUTHERN DENMARK, Odense, Denmark
Visiting Assistant Professor, 1990 - 1992

NATO POSTDOCTORAL FELLOWSHIP 1989-90
U. Milan and Technical U. of Denmark

SCHOLARSHIPS **NSERC GRADUATE SCHOLARSHIP**
Natural Sciences and Engineering Research Council of Canada

- University of Waterloo 1984-88
- Queen's University, 1982-84

JEFFERY SCHOLARSHIP, Acadia University 1979-82

- Scholarship given to top math students

AWARDS **BRONZE MEDAL**, Mathematics, Acadia University, 1982

- Awarded to top graduating math major

GRANTS **SWEDISH NATURAL SCIENCES RESEARCH COUNCIL**

- Project - Study of Cycles, Cocycles in Graphs, Colourings and Matroids, 1998-2001
- Project - Problems in Extremal Graph Theory, Cliques, Cycle Coverings, 1995-1998

NSERC DISCOVERY GRANT

- Project - *Cycles in Graphs and problems related to Matroids*, 2008-2013, \$ 8,000/year.

RESEARCH INTERESTS Combinatorics, Graph Theory, Matroid Theory

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RECENT TALKS **International Conference on Cycles,**
Vanderbilt U., June 2012,

- Invited talk: *Hamilton Circuits and Dominating Circuits in Regular Matroids*

Canadian and Mexican Math Societies Joint Meeting, Aug. 2009

- Invited talk: *A Base Exchange Property for Regular Matroids*

U. of Victoria Discrete Math Seminar, Feb. 2008,

- Invited talk: *Perfect Path Double Covers, Matroids and a Conjecture of Hajos*

SFU Discrete Math Seminar, April. 2008,

- Invited talk: *Perfect Path Double Covers, Matroids and a Problem of Goddyn*

AMS Special Session on Structure in Graphs and Matroids,
Jan. 2007, New Orleans, LA

- Invited talk: *Ore-Type and Dirac-Type Theorems for Matroids*

SIAM Conference on Discrete Mathematics

June 2004, Nashville, TN

- Invited talk: *Some New Ideas Concerning the Double Cover Conjecture*

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Canadian Mathematical Society Winter Meeting, Dec. 2003,
Vancouver, Canada

- Invited Talk: *Sequential Transversals in Graphs and Matroids*

DIMACS Workshop on Geometrical Graph Theory,
Oct. 2002, Rutgers NJ

- Invited Talk: *Bounding the Chromatic Number of Intersection Graphs of Arcwise Connected Sets*

AMS Meeting, June 2002, Portland OR

- Invited Talk: *Circuits Intersecting Cocircuits in Graphs and Matroids*

Big Sky Conference on Discrete Math, Sept. 2001, Univ. of Montana

- Talk: *A Problem for Matroids: Finding a Circuit Intersecting All Largest cocircuits*

PIMS Workshop on Graphs and Cycles, July 2000,
Simon Fraser University, Canada

- Invited Talk: *Double Covers of Cubic Graphs of Oddness Four*

CNRS Conference on Discrete Math, Sept. 2000, Marseille, France

- Talk: *Contractible Bonds in Graphs Without K_5 Minors*

SKILLS

- C++, Maple, Matlab, HTML, TeX, R, Postscript
- Fluent in Swedish

PERSONAL

- Canadian Citizen.

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STUDENTS Chester Lipka, Honours Thesis
SUPERVISED *Matroids Representable Over $GF(q)$* , 2008

Elias Rumley, Summer Project
The 5-Flow Conjecture, 2010

Peter Harding, USRA Project
Gallai's Conjecture, 2011

Luc Lapierre, USRA Project
The Graceful Tree Conjecture, 2012

Luc Lapierre, Honours Thesis, 2013

Luc Lapierre, Summer Project
Hamilton Circuits in Cayley Graphs, 2013

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PUBLICATIONS

Articles in Refereed Journals:

1. McGuinness, S., *A Base Exchange Property for Regular Matroids*, 36 pages, J. Combinatorial Theory Series B, published online, March 2014.
2. McGuinness, S., *Binary Matroids with No 4-Spike Minors*, Discrete Math., 324, 72-77, 2014.
3. Harding, P., McGuinness, S., *Gallai's Conjecture for Graphs of Girth at least Four*, J. Graph Theory, 75 (3), 256-274, 2014.
4. McGuinness, S., *Dominating circuits in Regular Matroids*, Advances in Applied Mathematics, 53, 72-111, 2014.
5. Brewster, R., McGuinness, S., Nielsen, M., *Factors with Multiple degree constraints in Graphs*, Siam J. Discrete Math., 27 (4), 1734-1747, 2013.
6. McGuinness, S., *An Erdős- Gallai Theorem For Matroids*, Annals of Combinatorics, 16, 107-119, 2012.
7. McGuinness, S., *Circuit and Fractional Circuit Covers of Matroids*, European Journal of Combinatorics, (31), 1335-1341, 2010.
8. McGuinness, S., *A Conjecture of Welsh Revisited*, European Journal of Combinatorics, 31, 2120-2129, 2010.
9. McGuinness, S., *Cycle and Cocycle Coverings of Graphs*, J. Graph Theory, 65 (4), 270-284, 2010.
10. McGuinness, S., *Ore-Type and Dirac-Type Theorems for Matroids*, J. Combinatorial Theory, Series B, **99** , 827-842, 2009.
11. Jones, S., McGuinness, S., *Defining Matroids Through Sequential Selection*, European Journal of Combinatorics, (**28**), 469-480, 2007.
12. McGuinness, S., *Circuits Through Cocircuits in a Graph* Combinatorica **25**(4), 451 - 463, 2005.
13. McGuinness, S., *Bonds Intersecting Cycles in a Graph*, Combinatorica **25**(4), 439 - 450, 2005.
14. Häggkvist, R., McGuinness, S., *Double Covers of Cubic Graphs of Oddness 4*, J. Combinatorial Theory, Series B, Vol. 93, (2), 251 - 277, 2005.

15. McGuinness, S., *Contractible Bonds in Graphs*, J. Combinatorial Theory, Series B, Vol. 93, (2), 207 - 249, 2005.
16. Van Den Heuvel, J., McGuinness, S., *Colouring the Square of a Planar Graph*, J. Graph Theory 42, 110 - 124, 2003.
17. McGuinness, S., *On Decomposing a Graph into Non-trivial Bonds*, J. Graph Theory 35, 109 - 127, 2000.
18. McGuinness, S., *Colouring Arcwise Connected Sets in the Plane II*, Graphs and Combinatorics, 17, 135 - 148, 2000.
19. McGuinness, S., *Colouring Arcwise Connected Sets in the Plane I*, Graphs and Combinatorics, 16, 429 - 439, 2000.
20. Goddyn, L., Van Den Heuvel, J., McGuinness, S., *Removable Circuits in Multigraphs*, J. Combinatorial Theory, Series B, Vol. 71, (2), 130 - 143, 1997.
21. McGuinness, S., *On bounding the Chromatic Number of L-Graphs*, Discrete Math, 154, 179 - 187, 1996.
22. McGuinness, S., *Greedy Clique Decompositions and the Turan Numbers*, European Journal of Combinatorics, 16, 371 - 380, 1995.
23. McGuinness, S., *Greedy Maximum Clique Decompositions*, Combinatorica (3) 335 - 343, 1994.
24. McGuinness, S., *Restricted Greedy Clique Decompositions and Greedy Clique Decompositions of K_4 - free graphs*, Combinatorica 14 (3), 321 - 334, 1994.
25. McGuinness, S., *The Greedy Clique Decomposition of a Graph*, Journal of Graph Theory, Vol. 18, no. 4, 427 - 430, 1994.
26. Markvorsen, S., McGuinness, S., Thomassen, C., *Transient Random Walks on Graphs and Metric Spaces with Applications to Hyperbolic Surfaces*, Proc. London Math. Soc., (3) 64, 1 - 20, 1992.
27. McGuinness, S., *Recurrent Networks and a Theorem of Nash-Williams*, J. Theor. Prob., vol. 4, no. 1, 1991.
28. McGuinness, S., Rees, R., *On the Number of Distinct Minimal Clique Partitions and Clique Covers of Line Graphs*, Discrete Math, 83, 49-62, 1990.
29. Chakravarty, N., Holman, G., McGuinness, S., Rescki, A., *One-Story Buildings as Tensegrity Frame Networks*, Structural Topology, no. 12, 1986.
30. Gregory, D.A., McGuinness, S., Wallis, W., *Clique Partitions of the Cocktail Party Graph*, Discrete Math, 59, 267-73, 1986.

Articles accepted for publication:

- Lapierre, L., McGuinness, S., *Constructing Trees with Graceful Labellings Using Caterpillars*, 7 pages, accepted for publication J. Combin. Math. Combin. Computing, 2013.
- McGuinness, S., *Bounds for binary matroids having no $PG(k-1,2)$ -minor*, 12 pages, accepted for publication in Annals of Combinatorics, 2013.

Research Reports:

1. Häggkvist, R., McGuinness, S., *On Decomposing 4-partite Graphs in Triangles*, research report, 7 pages, University of Umeå, 1993.
2. McGuinness, S., *Transient Networks and Fattenings of the Line*, research report, 13 pages, University of Umeå, 1992.
3. McGuinness, S., *Transient Markov Chains which Jump Along a Line*, research report, 13 pages, Technical University of Denmark, 1990.
4. McGuinness, S., Stoustrup, J., *On the Generic Controllability Index of a Time-Varying Structured System*, research report, 11 pages, Technical University of Denmark, 1990.
5. McGuinness, S., *Random Walks on Generalized Lattices*, research report, Technical University of Denmark, 1989.

Theses:

1. McGuinness, S., *The Double Cover Conjecture*, M.Sc. Thesis, Queen's University, 1984.
2. McGuinness, S., *Random Walks on Graphs and Digraphs*, Ph.D. Thesis, University of Waterloo, 1988.