

## Resume

Joanna A. Ellis-Monaghan

### Work:

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**Research Areas:** Algebraic combinatorics, graph theory, applied combinatorics.

### Education:

University of North Carolina, Chapel Hill, NC, Doctorate in Mathematics, fall 1995.

Advisor: James D. Stasheff. Dissertation: *A unique, universal graph polynomial and its Hopf algebraic properties, with applications to the Martin polynomial.*

Dartmouth College, Hanover, NH, fall semester 1988. Transferred to UNC in good standing.

University of Vermont, Burlington, VT, Master of Science in Mathematics, spring 1986.

Bennington College, Bennington, VT, Bachelor of Arts, Mathematics/Studio Art, spring 1984.

### Employment History:

*Saint Michael's College*, Mathematics Department, Colchester, VT, July 2002–present, Assistant Professor.

*University of Vermont*, Mathematics Department, Burlington, VT, August 2000–July 2002, Visiting Assistant Professor.

*Saint Michael's College*, Mathematics Department, Colchester, VT, August 1992–July 2002, Instructor, both full- and part-time.

*University of Vermont*, Mathematics Department, Burlington, VT, August 1992–July 1997, part-time Lecturer.

### Recent Student Mentoring and Research:

Patricia Bodkin and Whitney Sherman, Computation of graph polynomials for DNA sequencing. Continued support from Vermont Genetics Network/BRIN, 2003-2004.

Patricia Bodkin, Sarah Graham and Whitney Sherman, Computation of graph polynomials for DNA sequencing. Supported by a grant from Vermont Genetics Network/BRIN, summer 2003.

Laura McLane, Maplet Toolbox, tutorial and content website supported by a grant from Waterloo Maple, Inc., summer 2003.

Dan Nardi, Masters co-advisor and Masters Thesis Committee, University of Vermont, fall 2003.

Patricia Fogarty (SMC alumna), Masters Thesis Committee, University of Vermont, spring 2003.

Laura McLane and Colin Kriwox, Maplet development, Maple interface tools supported by a grant from Waterloo Maple, Inc., spring 2003.

Laura McLane, graphical-layout independent study, joint work with industry (Cadence Design Systems) and John Trono (SMC computer science), fall 2002.

Dan Nardi, pattern-recognition independent study, joint work with UVM Computer Science Department and IBM, spring 2002–summer 2003.

Angela Lavoie, graph-theory independent study, spring 2000.

## Publications:

1. *Some remarks on domination* (with D. Archdeacon, D. Froncek, P. C. B. Lam, B. Wei, and R. Yuster), to appear in the Journal of Graph Theory.
2. *Exploring the Tutte-Martin connection*, to appear in Discrete Mathematics.
3. *Water rockets in flight: Calculus in action* (with George Ashline and Alain Brizard), to appear in UMAP/ILAP.
4. *Identities for the circuit partition polynomials, with applications to the diagonal Tutte polynomial*, to appear in Advances in Applied Mathematics.
5. *Graph Theoretical Problems in Next Generation Chip Design* (with P. Gutwin), to appear in Congressus Numerantium.
6. *Generalized transition polynomials* (with I. Sarmiento), Congressus Numerantium **155** (2002) 57-69.
7. *Medial graphs and the Penrose polynomial* (with I. Sarmiento), Congressus Numerantium **150** (2001), 211–222.
8. *Home sweet home: A financial incentive for the lower level mathematics course* (with George Ashline), PRIMUS **XI**, no. 1 (2001), 16–26.
9. *Differentiating the Martin polynomial*, Congressus Numerantium **142** (2000), 173–83.
10. *How many people are in your future? Elementary models of population growth* (with George Ashline), in Making Meaning: Integrating science through the case study approach to teaching and learning, ed. S. Kuntz et al, McGraw-Hill Primis, 1999, pp. 42–80.
11. *How many people are in your future? Elementary models of population growth* (with George Ashline) (updated version), Case studies in ecology, ed. S. Kuntz et al., accompanying the 1<sup>st</sup> editions of Manuel Molles' text *Ecology: Concepts and Applications*. WCB McGraw-Hill, New York, 1999.
12. *Interdisciplinary population projects in a first semester calculus course* (with George Ashline), PRIMUS **IX** (March 1999), 39–55.
13. *Microcosm to macrocosm: Population models in biology and demography* (with George Ashline), Tools for Teaching, UMAP unit **777** (1999), 39–80
14. *Martin polynomial miscellanea*, Congressus Numerantium **137** (1999), 19–31.
15. *New results for the Martin polynomial*, Journal of Combinatorial Theory, series B **74** (1998), 326–52.

## Recent Extramural Grants:

Vermont Genetics Network/BRIN continued research support, academic year 2003-2004.

Maplet Toolbox Grant from Waterloo Maple, Inc., summer 2003.

Vermont Genetics Network/BRIN summer research support, summer 2003.

Maplet Development Grant from Waterloo Maple, Inc., spring 2003.

AWM Travel Grant to attend the Thirty-Third Southeastern International Conference on Combinatorics, Graph Theory, and Computing, FAU, Boca Raton, FL, March 2002.