

**Date Submitted:** 2017-07-19 07:44:27

**Confirmation Number:** 678793

**Template:** NSERC\_Researcher

---

**Dr. Karen Meagher**

Correspondence language: English

Sex: Female

**Contact Information**

The primary information is denoted by (\*)

**Address**

Primary Affiliation (\*)

University of Regina  
3737 Wascana Parkway  
Regina Saskatchewan S4S0A2  
Canada

**Telephone**

Work (\*)                      306-5854886

**Email**

Work (\*)                      karen.meagher@uregina.ca



Protected when completed

## Dr. Karen Meagher

---

### Language Skills

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes

### Degrees

- 2005/8                      Doctorate, Discrete Mathematics, University of Ottawa
- 1997/5                      Master's Thesis, Functional Analysis, University of Waterloo
- 1995/4                      Bachelor's, Mathematics, University of Alberta

### User Profile

Research Specialization Keywords: Design Theory, Algebraic graph theory, Extremal finite set theory, Orthogonal arrays, Covering arrays, Software testing, Association schemes

### Employment

- 2017/1                      Acting Associate Dean, Faculty of Graduate Studies and Research  
Graduate Studies and Research, The University of Regina  
Full-time  
Tenure Status: Tenure
- 2007/7                      Associate Professor  
Mathematics and Statistics, The University of Regina  
Full-time  
Tenure Status: Tenure
- 2005/10 - 2007/5                      NSERC Post-Doctoral Fellow  
Combinatorics and Optimization, University of Waterloo  
Full-time  
Tenure Status: Non Tenure Track
- 2002/9 - 2005/9                      Instructor and Teaching Assistant  
Mathematics and Statistics, University of Ottawa  
Part-time  
Tenure Status: Non Tenure Track
- 1999/11 - 2001/7                      Computer Programmer and Research Assistant (Mitacs)  
Computer Science, Simon Fraser University  
Full-time  
Tenure Status: Non Tenure Track
- 1998/8 - 1999/9                      Computer Programmer  
Management Information Group

1995/9 - 1997/4	Teaching Assistant Department of Pure Mathematics, University of Waterloo Part-time Tenure Status: Non Tenure Track
1995/1 - 1995/4	Teaching Assistant Department of Mathematics, University of Alberta Part-time Tenure Status: Non Tenure Track

## Leaves of Absence and Impact on Research

2010/12 - 2011/11	Parental, The University of Regina I was on maternity/parental leave for 8 months in 2011, I returned to work for the summer to supervise graduate students and organize a workshop.
-------------------	---

## Research Funding History

### Awarded [n=1]

2013/4 - 2018/3 Principal Applicant	An algebraic approach to the Erdos-Ko-Rado theorem <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant Total Funding - 75,000 Portion of Funding Received - 75,000 Funding Competitive?: Yes
--	--

### Completed [n=1]

2008/4 - 2012/3 Principal Applicant	Covering Arrays and Qualitative Independence Graphs <b>Funding Sources:</b> Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant Total Funding - 75,000 Portion of Funding Received - 75,000 Funding Competitive?: Yes
--	---

## Student/Postdoctoral Supervision

### Bachelor's [n=2]

2016/5 - 2016/8 Principal Supervisor	Jaques, Sam, University of Regina Thesis/Project Title: Erdos-Ko-Rado theorems for permutations Present Position: Master's student at the University of Waterloo
2013/4 - 2013/8 Principal Supervisor	Dyck, Adam, University of Regina Thesis/Project Title: Intersecting subset partitions Present Position: MSc Student, Simon Fraser University

**Master's Thesis [n=1]**

2016/1 - 2017/7  
Co-Supervisor  
Gorr, Adam, University of Regina  
Thesis/Project Title: Eigenvalues in Hypergraphs  
Present Position: Climate Change and Modelling and Offsets Analyst, Climate Change Branch or Ministry of Environment, Gov't of Saskatchewan

**Doctorate [n=3]**

2010/9 - 2013/7  
Co-Supervisor  
Alinaghipour, Fatemeh, University of Regina  
Thesis/Project Title: Zero Forcing sets for Graphs  
Present Position: Assistant Professor, Shiraz University

2010/9 - 2014/8  
Principal Supervisor  
Purdy, Alison, University of Regina  
Thesis/Project Title: Compression Techniques and the Erdos-Ko-Rado Theorem  
Present Position: Musician

2009/9 - 2013/7  
Principal Supervisor  
Ahmadi, Bahman, University of Regina  
Thesis/Project Title: Cayley Graphs on the Symmetric Group Generated by Cycles  
Present Position: Postdoctoral Fellow, Shiraz University

**Post-doctorate [n=3]**

2016/7 - 2017/7  
Principal Supervisor  
Ihringer, Ferdinand, University of Regina  
Thesis/Project Title: Miklos-Manickam-Singhi Conjectures in Association Schemes.  
Present Position: Post-Doctoral Fellow, The Hebrew University of Jerusalem

2014/8 - 2015/11  
Principal Supervisor  
Purdy, Alison, University of Regina  
Thesis/Project Title: Intersecting Theorems for Multisets  
Present Position: Musician

2009/1 - 2012/1  
Principal Supervisor  
Bailey, Robert, University of Regina  
Thesis/Project Title: Metric Dimension of strongly-regular graphs  
Present Position: Assistant Professor, Memorial University (Grenfell Campus)

**Event Administration**

2016/9 - 2017/7  
Co-Organizer, Prairie Discrete Math Workshop, Workshop, 2017/6 - 2017/6

2015/7 - 2016/6  
Organizing Committee Member, PIMS Emerging Mathematics Instructor Workshop, Workshop, 2016/5 - 2016/5

2013/9 - 2014/6  
Organizing Committee Member, Algebraic Combinatorics: Spectral Graph Theory, Erdos-Ko-Rado Theorems and Quantum Information Theory - A Conference to Celebrate the work of Chris Godsil, Conference, 2014/6 - 2014/6

2012/1 - 2012/6  
Session co-organizer, Combinatorics session at the CMS summer meeting, Conference, 2012/6 - 2012/6

2010/11 - 2011/8  
Co-Organizer, Prairie Discrete Math Workshop, Workshop, 2011/7 - 2011/7

2010/11 - 2011/8  
Co-Organizer, Graphs, Designs and Algebraic Combinatorics, Conference, 2011/7 - 2011/7

2010/5 - 2011/4  
Program Committee Member, Canadian Discrete and Algorithmic Mathematics Conference (CanaDAM), Conference, 2011/6 - 2011/6

## Committee Memberships

2016/1	Committee Member, NSERC Advisory Group, The University of Regina
2016/1 - 2016/12	Committee Member, Physics Hiring Committee, The University of Regina
2016/1 - 2016/12	Committee Member, Faculty of Science Associate Dean (Research and Graduate) Reappointment Advisory Committee, The University of Regina
2015/1 - 2016/12	Committee Member, Faculty Review Committee, The University of Regina
2013/1 - 2016/12	Chair, Mathematics Undergraduate Studies Committee, The University of Regina
2011/1 - 2016/12	Committee Member, Faculty of Science Admissions and Studies Committee, The University of Regina
2012/1 - 2013/12	Committee Member, Department of Mathematics and Statistics Committee on Undergraduate Studies, The University of Regina
2009/1 - 2013/12	Chair, University of Regina Women in Science and Engineering (UR-WISE), The University of Regina

## Presentations

- (2017). Cocliques in Derangement Graphs. 2nd Malta Conference in Graph Theory and Combinatorics, Qawra, Malta  
Main Audience: Researcher  
Invited?: Yes, Keynote?: Yes
- (2017). EKR Theorems. 5th Irsee Conference, Kloster Irsee, Germany  
Main Audience: Researcher  
Invited?: Yes, Keynote?: Yes
- (2017). Cocliques in Derangement Graphs. University of Winnipeg Math Colloquium, Winnipeg, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
- (2016). An introduction to Erdos-Ko-Rado theorems from an algebraic perspective. IntersectionFest, Richmond, United States  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
- (2016). Derangement Graphs for 2-transitive Groups. Canadian Mathematics Society, Edmonton, Canada  
Main Audience: Researcher  
Invited?: No, Keynote?: No
- (2015). Introduction to Association Schemes. University of Malta Colloquium speaker, Msida, Malta  
Main Audience: Researcher  
Invited?: No, Keynote?: No
- (2015). Algebraic Approaches to the Erdos-Ko-Rado Theorem. University of Regina Colloquium, Canada  
Main Audience: Researcher  
Invited?: No, Keynote?: No
- (2015). Algebraic Approaches to the Erdos-Ko-Rado Theorem. CanaDAM Conference, Saskatoon, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: Yes

9. (2015). Graphs that have a weighted adjacency matrix with exactly two distinct eigenvalues. CanaDAM, Saskatoon, Canada  
Invited?: No, Keynote?: No
10. (2014). Extensions of Katona's Method for the EKR-Theorem. Arizona State University Combinatorics Seminar, Phoenix, United States  
Invited?: Yes, Keynote?: No
11. (2014). The Erdos-Ko-Rado Theorem: an algebraic perspective. Modern Trends in Algebraic Graph Theory Conference, Villanova, United States  
Invited?: Yes, Keynote?: No
12. (2014). Erdos-Ko-Rado theorems: an algebraic perspective. Algebraic Combinatorics: Spectral Graph Theory, Erdos-Ko-Rado Theorems and Quantum Information Theory conference, Waterloo, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: Yes
13. (2014). The Erdos-Ko-Rado Theorem: an Algebraic Perspective. Malta Colloquium, Msida, Malta  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
14. (2014). Graph Theory and the Erdos-Ko-Rado Theorem. Canadian Math Society Summer Meeting, Canada  
Invited?: No, Keynote?: No
15. (2013). Covering arrays on graphs. CanaDAM, Canada  
Invited?: No, Keynote?: No
16. (2013). Minimum number of distinct eigenvalues of a graph. CanaDAM, St. John's, Canada  
Invited?: No, Keynote?: No
17. (2013). The EKR theorem for permutations. Ottawa-Carleton Discrete Math Days, Ottawa, Canada  
Invited?: Yes, Keynote?: No
18. (2012). Sperner partition systems. Canadian Mathematics summer conference, Canada  
Invited?: No, Keynote?: No
19. (2012). The EKR theorem for permutations. Prairie Discrete Math Workshop, Calgary, Canada  
Invited?: Yes, Keynote?: No
20. (2011). The Erdos-Ko-Rado Theorem. Graphs, Designs and Algebraic Combinatorics Conference, Regina, Canada  
Main Audience: Researcher  
Invited?: No, Keynote?: No
21. (2011). The Erdos-Ko-Rado Theorem. Prairie Network for the Mathematical Sciences, Regina, Canada  
Main Audience: Researcher  
Invited?: Yes, Keynote?: No
22. (2011). My (Mathematical) Problems with Computer Scientists. Computer Science Colloquium, Regina, Canada  
Invited?: Yes, Keynote?: No
23. (2011). The Erdos-Ko-Rado Theorem: An Algebraic Perspective. BIRS Workshop on Algebraic Combinatorics, Banff, Canada  
Main Audience: Researcher  
Invited?: No, Keynote?: No
24. (2011). The Erdos-Ko-Rado Theorem: An Algebraic Perspective. Canadian Mathematics Society summer meeting, Canada  
Invited?: No, Keynote?: No

## Publications

### Journal Articles

1. Adm M, Bergen R\*, Ihringer F, Jaques S\*, Meagher K, Purdy A, Yang B. (2017). Ovoids of generalized quadrangles of order  $(q, q^2-q)$  and Delsarte cocliques in related strongly-regular graphs. *Journal of Combinatorial Designs*.  
Submitted  
Refereed?: Yes
2. Bergen R\*, Fallat S, Gorr A\*, Ihringer F, Meagher K, Purdy A, Yang B, Yu G. (2017). Infection in Hypergraphs. *Discrete Applied Mathematics*.  
Submitted  
Refereed?: Yes
3. Kokkala J\*, Meagher K, Naserasr R, Nurmela K, Ostergard P, Stevens B. (2017). Bounds, structure, and classification of small strength-2 covering arrays. *Electronic Journal of Combinatorics*.  
Submitted  
Refereed?: Yes
4. Fallat S, Meagher K, Yang B. (2016). On the Complexity of the Positive Semidefinite Zero Forcing Number. *Linear Algebra and its Applications*.  
Published  
Refereed?: Yes
5. Godsil C, Meagher K. (2016). An algebraic proof of the Erdos-Ko-Rado theorem for intersecting families of perfect matchings. *Ars Mathematica Contemporea*.  
Published  
Refereed?: Yes
6. Meagher K, Spiga P, Tiep PH. (2016). An Erdos-Ko-Rado theorem for finite 2-transitive groups. *European Journal of Combinatorics*.  
Published  
Refereed?: Yes
7. Meagher K, Purdy A\*. (2016). Intersection theorems for multisets. *European Journal of Combinatorics*.  
Published  
Refereed?: Yes
8. Borg P, Meagher K. (2016). The Katona cycle proof of the Erdos-Ko-Rado theorem and its possibilities. *Journal of Algebraic Combinatorics*.  
Published  
Refereed?: Yes
9. Ihringer F, Meagher K. (2016). Mikos-Manickam-Singhi Conjectures on Partial Geometries. *Combinatorica*.  
Accepted  
Refereed?: Yes
10. Fallat S, Meagher K, Soltani A\*, Yang B. (2016). Compressed Cliques Graphs, Clique Coverings and Positive Zero Forcing. *Theoretical Computer Science*.  
Submitted  
Refereed?: Yes
11. Erzurumluoglu A, Meagher K, Pike D. (2016). Brushing Number and Zero-Forcing Number of Graphs and their Line Graphs. *Discrete Applied Mathematics*.  
Submitted  
Refereed?: Yes

12. Ahmadi B\*, Meagher K. (2015). The Erdos-Ko-Rado property for some 2-transitive groups. *The Annals of Combinatorics*.  
Published  
Refereed?: Yes
13. Dyck A\*, Meagher K. (2015). An Erdos-Ko-Rado theorem for subset partitions. *Involve, a Journal of Mathematics*.  
Published  
Refereed?: Yes
14. Ahmadi B\*, Meagher K. (2015). The Erdos-Ko-Rado property for some permutation groups. *The Australasian Journal of Combinatorics*.  
Published  
Refereed?: Yes
15. Borg P, Meagher K. (2015). Intersecting generalised permutations. *Australasian Journal of Combinatorics*.  
Published  
Refereed?: Yes
16. Ahmadi B\*, Alinaghipour F\*, Cavers M, Fallat S, Meagher K, Nasserass S. (2014). Minimum number of distinct eigen values of graphs. *Electronic Journal of Linear Algebra*.  
Published  
Refereed?: Yes
17. Meagher K, Spiga P. (2014). An Erdos-Ko-Rado theorem for the derangement graph of  $PGL_3(q)$  acting on the projective plane. *SIAM Journal on Discrete Mathematics*.  
Published  
Refereed?: Yes
18. Alinaghipour F\*, Fallat S, Meagher K. (2014). On the Relationships between Zero Forcing Numbers and Certain Graph Coverings. *Special Matrices*.  
Published  
Refereed?: Yes
19. Ahmadi B\*, Meagher K. (2014). A new proof for the Erdos-Ko-Rado Theorem for the alternating group. *Discrete Mathematics*.  
Published  
Refereed?: Yes
20. Li P, Meagher K. (2013). Sperner Partition Systems. *Journal of Combinatorial Designs*.  
Published  
Refereed?: Yes
21. Bailey R, Caceres J, Garijo D, Gonzalez A, Marquez A, Meagher K, Puertas M. (2012). Resolving sets in Johnson and Kneser graphs. *European Journal of Combinatorics*.  
Published  
Refereed?: Yes
22. Ahmadi B\*, Alinaghipour F\*, Fallat S, Fan Y, Meagher K, Nasserass S. (2012). The minimum rank of universal adjacency matrices. *Linear Algebra and its Applications*.  
Published  
Refereed?: Yes
23. Meagher K, Purdy A\*. (2011). EKR for multisets. *Electronic Journal of Combinatorics*.  
Published  
Refereed?: Yes



24. Bailey R, Meagher K. (2011). On the metric dimension of Grassman graphs. Discrete Math and Theoretical Computer Science.  
Published  
Refereed?: Yes
25. Meagher K, Spiga P. (2011). An Erdos-Ko-Rado theorem for the derangement graph of  $\text{PGL}(2,q)$  acting on the projective line. Journal of Combinatorial Theory Series A.  
Published  
Refereed?: Yes
26. Bailey R, Burgess A\*, Cavers M\*, Meagher K. (2011). Generalized covering designs and clique coverings. Journal of Combinatorial Designs.  
Published  
Refereed?: Yes

## Books

1. Godsil C, Meagher K. (2016). Erdos-Ko-Rado Theorems: Algebraic Approaches.  
Published, Cambridge University Press  
Refereed?: Yes