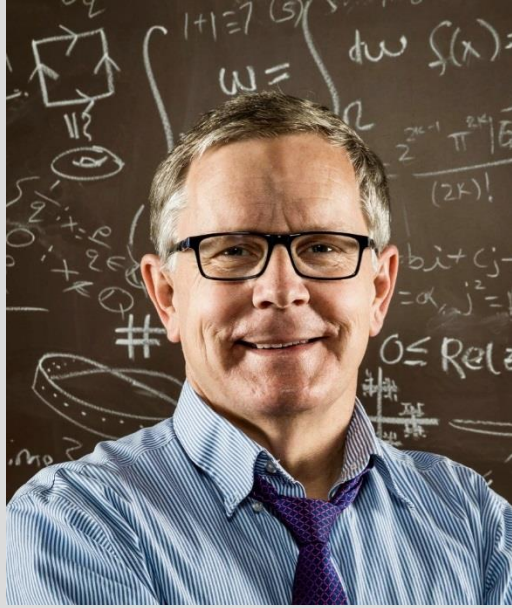




The Nebraska Southeast South Dakota Spring 2018 Section Meeting

April 20-21, 2018, University of Nebraska at Omaha



Keynote Speaker: Michael Dorff

Department Chair and Professor of Mathematics

Brigham Young University

Next President of the MAA

Michael Dorff earned his Ph.D. in 1997 from the University of Kentucky in complex analysis, has published about 35 refereed papers, and has given about 500 talks on mathematics. He is interested in undergraduate research, in non-academic careers in mathematics, and in promoting mathematics to the general public. He is a Fellow of the American Mathematical Society, a Fulbright Scholar in Poland, received a national Haimo Teaching Award from the MSS, and co-directs the PIC Math (Preparation for Industrial Careers in the Mathematical Sciences). He is married with 5 daughters. In any free time he has, he enjoys reading, running, and traveling.

Friday, April 20, Durham Science Center 115-116, Section meeting program 1:30-6:15PM

5:15-6:15, Keynote talk: ***The best jobs this century? – mathematician/STEM careers!***

Abstract: A 2014 ranking from CareerCast.com, a job search website, recently named mathematician the best job of 2014. “Mathematicians pull in a midlevel income of \$101,360, according to CareerCast.com, and the field is expected to grow 23% in the next eight years,” states the Wall Street Journal blog post. Many students and professors think that teaching is the main (or only) career option for someone who studies mathematics. But there are hundreds of jobs for math students. However, just graduating with a math degree is not enough to guarantee getting one of these jobs. In this talk, we will talk about some of the exciting things mathematicians in business, industry, and government are doing in their careers. Also, we talk about the national PIC Math program that prepares students for nonacademic careers. Finally, we will reveal the three things that recruiters say every math student should do to get a job.



Saturday, April 21, Durham Science Center 115-116, Section meeting program 8:30-11:00AM

10:00-11:00, Keynote talk: ***How mathematics is making Hollywood movies better.***

Abstract: What’s your favorite movie? Star Wars? Avatar? The Avengers? Frozen? What do these and all the highest earning Hollywood movies since 2000 have in common? Mathematics! You probably didn’t think about it while watching these movies, but math was used to help make them. In this presentation, we will discuss how math is being used to create better and more realistic movies. Along the way we will discuss some specific movies and the mathematics behind them. We will include examples from Disney’s 2013 movie Frozen (how to use math to create realistic looking snow) to Pixar’s 2004 movie The Incredibles (how to use math to make an animated character move faster). Come and join us and get a better appreciation of mathematics and movies.



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Friday, April 20

11:30 – 1:00 Board meeting, Durham Science Center 208

Room: Durham Science Center 115-116

12:30 – 1:30 **Registration (until 5:30PM) and Welcome**

1:30 – 1:50 Steven R. Dunbar, University of Nebraska at Lincoln: *Graph Theory of Redistricting*.

1:50 – 2:10 Xiaoyue Cheng, University of Nebraska at Omaha: *Becoming a better instructor: experience from a junior faculty*.

2:10 – 2:30 Muhammad Inam, Alabama A&M University: *The word problem for one relation Adian inverse semigroups*.

2:30 – 2:45 **Break**

Room: Durham Science Center 115 (parallel sessions, students)

2:45 – 3:05 Christopher Chapin (grad), University of Nebraska at Omaha: *Solutions to $x^4 - p^2y^4 = z^4$ in quadratic extensions of the Rationals*.

3:05 – 3:25 Bronson Wacker (grad), Dora Matache, University of Nebraska at Omaha: *Network Topologies and the Determinative Power*.

3:25 – 3:45 Matthew Eller (undergrad), Mahboub Baccouch, University of Nebraska at Omaha: *Fourier series expansion methods for the heat and wave equations in two and three dimensions*.

3:45 – 4:00 **Break**

Room: Durham Science Center 116 (parallel sessions, students)

2:45 – 3:05 Andrew Oberg (undergrad), Danielle Melnar, (undergrad), University of Nebraska at Omaha: *NOYCE Connecting Faculty-Students-Community*.

3:05 – 3:25 Nadia Missak (undergrad), Courtney Swift (undergrad), University of Nebraska at Omaha: *ESCAPE UNO*.

3:25 – 3:45 Brian Detweiler (grad), University of Nebraska at Omaha: *Complex Survey Design and the Nationwide Inpatient Sample*.

3:45 – 4:00 **Break**

Room: Durham Science Center 115 (parallel sessions, students)

4:00 – 4:20 Brad Horner (undergrad), University of Nebraska at Omaha: *Adventures in S^3* .

4:20 – 4:40 Nicholas Britten (grad), University of South Dakota: *Addition property of Algebraic Entropy: some noncommutative cases*.

4:40 – 5:00 Andrea Lopez (undergrad), University of Nebraska at Omaha: *Fibonacci in the Real World*.

Abstract: Fibonacci found in the real world.

5:00 – 5:15 **Break**

Room: Durham Science Center 116 (parallel sessions, students)

4:00 – 4:20 Trevor Pentzien, (undergrad), Dora Matache, University of Nebraska at Omaha: *Node power and centrality in Boolean networks*.

4:20 – 4:40 Paul D. P. Blum (undergrad), Victor Winter, Betty Love, Michelle Friend, and Michael Matthews, University of Nebraska at Omaha: *Setting the Foundation for Bricklayer; Functional Programing in the Classroom*.

4:40 – 5:00 Christopher Johnson (undergrad), Dr. Donald Rowen, University of Nebraska at Omaha: *Using interpretable neural network models of *Pseudomonas aeruginosa* gene expression to reveal potential functions of an unstudied transcription factor*.

5:00 – 5:15 **Break**

5:15 – 6:15 Guest speaker: Michael Dorff, Brigham Young University, Next president of the MAA: ***The best jobs this century? – mathematician/STEM careers!***

7:00- Banquet: Scott Conference Center, 6450 Pine St, Omaha, NE 68106

Saturday, April 21

Room: Durham Science Center 115-116

8:00 – 8:30 **Registration (until 9:00AM)**

8:30 – 8:50 Laura McCauley, Peru State College: *Spot It! with Combinatorics*.

8:50 – 9:10 Margaret Adams, South Georgia State College: *Proposed Theoretical Model of Understanding Piecewise Functions*.

9:10 – 9:30 Jeff Solheim: *Refuting a Conjecture of Goldbach*.

9:30 – 9:50 Peggy Hart, Doane University: *An Intro to the Mathematics Major Course*.

9:50 – 10:00 **Break**

10:00 – 11:00 Guest speaker: Michael Dorff, Brigham Young University, Next president of the MAA: ***How mathematics is making Hollywood movies better***.

11:00 – 11:15 **Concluding remarks and Break**

11:15 – 12:15 Business Meeting