All activities are held in Bachelor Hall, Miami University

Friday, September 20

1:00 pm Room 101	**Welcome and Introductions** **Opening Remarks** Renate Crawford, Miami University.
1:15 pm Room 101	**Invited Address** Björn Sandstede, Brown University, *Dynamics of nonlinear waves and patterns.*
2:15 pm	**Break**
2:30 pm Room 101	**Invited Address** Todd Young, Ohio University, *Temporal clusters prefer to be equally distributed - an example from the yeast cell cycle.*
3:30 pm	**Break**

3:45 pm   **Parallel Sessions**

Room 110

3:45 pm - 4:15 pm Julia Arciero, Indiana University–Purdue University Indianapolis, *Maximizing the potential of Treg-based therapies for transplant rejection via mathematical modeling: effect of dose, timing, and distribution.*

4:20 pm - 4:35 pm Erin Ellefsen, University of Colorado Boulder, *Efficiently finding steady states of nonlocal territorial models in Ecology.*

Room 112

3:45 pm - 4:15 pm Darryl Nester, Bluffton University, *Compartmental Analysis, SIR models, and the Zombie Apocalypse.*

4:20 pm - 4:35 pm Roshini Gallage, Southern Illinois University, Carbondale, *Approximation of continuously distributed delay differential equations.*

Room 114

3:45 pm - 4:15 pm Steve Harnish, Bluffton University, *Analyzing MD simulations and iterated function systems via 'Feasts and Famines' of image processing.*

4:20 pm - 4:35 pm Stephane Lafortune, College of Charleston, *Stability of traveling waves in a model for a thin liquid film flow.*

4:45 pm   **Invited Address**

Room 101

                 Nancy Rodríguez,
                 University of Colorado Boulder,
                         A story on the ideal free distribution, the Allee effect, and competition through the lens reaction-advection-diffusion equations.

5:45 pm   **Courtyard Pizza Party**
                 (Reservations Required)

7:00 pm   ## Pi Mu Epsilon Student Talks

Room 110
7:00 pm - 7:15 pm Margaret McGuire, The College of Wooster, *Reaction-diffusion models of 2D surfaces embedded in 3D space and a model of geographic tongue.*

7:20 pm - 7:35 pm Sylvia Yu, The College of Wooster, *Reaction-diffusion wavefronts with concave, spiral, fractals and soft obstacles.*

7:40 pm - 7:55 pm Phuong Ho, Miami University, *Quantum generalized Weyl algebra.*

8:00 pm - 8:15 pm Melita Wiles, The College of Wooster, *Energy stability of gravitationally interacting rods and dumbbells.*

8:20 pm - 8:50 pm Chloe Makdad, Butler University, *An extension theorem for bicomplex functions.*

8:55 pm - 9:10 pm Sara Helwig, Ohio Northern University, *Statistical consulting for the DoD: The Importance of Effective and Efficient Experimental Designs.*

Room 112
7:00 pm -7:15 pm Benjamin Rempfer, Butler University, *Geometric limits of Julia sets for a non-hyperbolic Siegel disk map.*

7:20 pm -7:35 pm Kendra Herweck, Northern Kentucky University, *Star formation: modeling the loss of magnetic support for dense core.*

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7:40 pm - 7:55 pm Chase Fuller, The College of Wooster, *Chemical diode behavior in the Belousov-Zhabotinsky reaction due to inhomogeneous diffusion.*

8:00 pm - 8:15 pm Alex Hwang, The College of Wooster, *Dynamic market equilibrium: price behind the scenes.*

8:20 pm - 8:50 pm Troy Wiegand, Butler University, *Discerning complex Hadamard submatrices of the Fourier matrices via primitive sets.*

8:55 pm - 9:10 pm Steven Collar, Miami University, *Fronts in a model for competitive exothermic combustion.*

Room 114
7:00 pm - 7:15 pm Jonathan Ford, Northern Kentucky University, *Exploring neural networks with Mathematica.*

7:20 pm - 7:35 pm Michael Pavelites, Fairmont State University, *Discrete Analogues of Chebyshev Polynomials.*

7:40 pm - 7:55 pm Dejuan Winters, Butler University, *Geometric limits of Julia sets with a parabolic implosion.*

8:00 pm - 8:15 pm Marzieh Bakhshi, Miami University, *A chain rule for a generalized derivative.*

8:20 pm - 8:50 pm Yangxinyu Xie, University of Texas at Austin, *On tropical commuting matrices.*

8:55 pm - 9:10 pm Thong Ngo, Centre College, *The Jones polynomial of Montesinos link.*

Room 102
7:00 pm - 7:15 pm Ryan Oostland, Bluffton University, *Mathematics and algorithms to detect crystalline defects in Molecular Dynamics (MD) simulations.*

7:20 pm - 7:35 pm Jacob Fryman, Northern Kentucky University, *Exploring neural networks with Mathematica.*

7:40 pm - 7:55 pm Corey Thrush, Ohio Northern University, *Zero sum two player game*s.

8:00 pm - 8:15 pm Andrew Loewe, Ohio Northern University, *Sabermetrics - what, why, and is it good for the game?*

8:20 pm - 8:35 pm Jacob Charboneau, Butler University, *Finding small sizes of Modulo Difference Covers.*

8:55 pm - 9:10 pm David Gregory, Butler University, *Finding small sizes of Modulo Difference Covers.*

Saturday, September 21

8:30 am   **Coffee and Doughnuts**
Room 115A

9:00 am   **Invited Address**
Room 101

       Arnd Scheel, University of Minnesota,
         Patterning and self-organization beyond
       Turing: from myxobacteria to flatworms.

10:00 am -10:15 am **Break**

               Parallel Sessions

Room 110
10:15 am - 10:45 am Chunhua Shan, University of Toledo,
Periodic phenomena and driven mechanisms in transmission of West Nile virus with maturation time.

10:50 am - 11:20 am Scott Kaschner, Butler University,
Superstable nanifolds and the Ising model on hierarchical lattices.

11:25 am - 11:55 am Kyle Claassen, Rose-Hulman Institute of Technology, *Numerical bifurcation and spectral stability of wavetrains in bidirectional Whitham models.*

Room 112
10:15 am - 10:45 am Ivan Sudakov, University of Dayton,
Bifurcation analysis of species extinction in large competitive populations.

10:50 am - 11:20 am Son Van, Carnegie Mellon University,
Optimal heat transfer in a box.

11:25 am - 11:55 am Quiliang Wu, Ohio University,

The effect of impurities on stripes in multi-dimensional extended domains.

Room 114
10:15 am - 10:45 am Niklas Manz, The College of Wooster, *Visualizing dynamical systems with fire fronts.*

10:50 am - 11:20 am Veronica Ciocanel, The Ohio State University, *Insights for cellular transport from partial differential equations models.*

11:25 am - 11:55 am Peter Gordon, Kent State University, *Gelfand-type problem for turbulent jets.*

12:00 pm	**Picnic Lunch**
Bachelor Hall	(Reservations Required)
Courtyard	

Parallel Sessions

Room 110
1:30 pm - 1:45 pm Naum Gershenzon, Wright State University, *Application of Sine-Gordon modulation equations for investigation of instability of frictional sliding.*

1:50 pm - 2:20 pm Andrei Prokhorov, University of Michigan, *Connection problem for Painlevé tau functions.*

2:25 pm - 2:55 Ben Akers, Air Force Institute of Technology, *Dimension breaking in models for interfacial waves.*

3:00 pm - 3:15 pm King-Yeung Lam, The Ohio State University, *Monotonicity and global dynamics of a nonlocal two-species phytoplankton model.*

Room 112
1:30 pm - 1:45 pm Phillip Korman, University of Cincinnati,

Numerical computation of global solution curves using global parameters.

1:50 pm - 2:20 pm Peter Thomas, Case Western Reserve University, *Two approaches to phase reduction for stochastic oscillators.*

2:25 pm - 2:55 pm Shusen Pu, Case Western Reserve University, *Stochastic shielding for stochastic conductance-based neural models under current clamp.*

3:00 pm - 3:15 pm Thomas Hill, University of Cincinnati, *New method for dispersive estimates of second order Schrodinger equation.*

3:20 pm - 3:50 pm Chanaka Kottegoda, University of Toledo, *Bifurcation analysis of predator-prey system with Holling Type IV functional response and Allee effect.*
Room 114
1:30 pm - 1:45 pm Laurence Robinson, Ohio Northern University, *How important is a course in differential equations for statisticians?*

1:50 pm -2:20 pm Tom Cuchta, Fairmont State University, *Introduction to calculus on time scales with some applications.*

2:25 pm - 2:55 pm Qingbo Huang, Wright State University, *Regularity theory for fully nonlinear elliptic equations with asymptotical approximate convexity.*

3:00 pm - 3:15 pm Shuang Liu, Renmin University of China, *On principal eigenvalues of second order elliptic operators with drift.*

Support

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