# RICHARD CANGELOSI

1109 S. WALNUT ST, APT.4, SPOKANE, WA 99204 | (509) 251-1770 | cangelosi@gonzaga.edu


## RESEARCH INTERESTS

Modeling nonlinear phenomena with application to biology and ecology, models for biological pattern formation, delay equations, perturbation theory, chaos theory and fractal geometry, models of student learning, methods for student assessment

## ACADEMIC POSITIONS

| | |
|---|---|
| Gonzaga University, Spokane, WA<br>Assistant Professor of Mathematics | Fall 2014 – Present |
| Washington State University, Pullman, WA<br>Graduate Teaching Assistant | 2007 – 2014 |
| University of Arizona, Tucson, AZ<br>Lecturer | 2002 – 2007 |
| University of Arizona, Tucson, AZ<br>Graduate Teaching Assistant | 1999 – 2002 |
| Drexel University, Philadelphia, PA<br>Adjunct Faculty | 1997 – 1998 |
| Temple University, Philadelphia, PA<br>Adjunct Faculty | Spring 1998 |
| The Richard Stockton State College of New Jersey, Stockton, NJ<br>Adjunct Faculty | Fall 1997 |

## EDUCATION

Washington State University, Pullman, WA

Ph.D., Mathematics, April 2014

- *Thesis Topic*: Pattern formation properties of a system of interactive-diffusion equations relevant to a mussel-algae ecosystem in a quiescent marine layer
- *Advisor*: David J. Wollkind, Ph.D.

University of Arizona, Tucson, AZ

M.S., Mathematics, June 2004

- *Thesis Topic*: Component retention in a principal component analysis with application to cDNA microarray data
- *Advisor*: Alain Goriely, Ph.D.

Drexel University, Philadelphia, PA

B.S., Mathematics, June 1998

- *Magna Cum Laude*

## REFEREED PUBLICATIONS

1. **Cangelosi, R. A.**, Schwartz, E., & Wollkind, D. J. A quasi-steady-state approximation to the basic viral dynamics model with a noncytopathic effect. *Frontiers in Microbiology: Infectious Disease*. Under review.

REFEREED PUBLICATIONS CONTINUED

2. Davis, M. G., Wollkind, D. J., **Cangelosi, R. A.**, & Kealy-Dichone, B. J., (2018). The behavior of a population interaction-diffusion equation in its subcritical regime. *Involve*, 11(2), 297–309.
3. Chaiya, I., Wollkind, D. J., **Cangelosi, R. A.**, Kealy-Dichone, B. J., & Rattanakul, (2015). Vegetative rhombic pattern formation driven by root suction for an interaction-diffusion plant-ground water model system in an arid environment. *American Journal of Plant Science*, 6(8), DOI 10.4236/ajps.2015.68129.
4. Kealy-Dichone, B., Wollkind, D.J., **Cangelosi, R. A**. 2015. Rhombic analysis extension of a plant-surface water interaction-diffusion model for hexagonal pattern formation in an arid flat environment. *American Journal of Plant Science*, 6(8), DOI 10.4236/ajps.2015.68128.
5. **Cangelosi, R. A.**, Wollkind, D. J., Kealy-Dichone, B. J., Chaiya, I. 2014. Nonlinear Turing patterns for a mussel-algae model, *J. Math. Biol*. DOI 10.1007/s00285-014-0794-7.
6. **Cangelosi, R. A**., Olson, J., Madrid, S., Cooper, S., & Hartter, B., 2013. The negative sign and exponential expressions: Unveiling students' persistent errors and misconceptions. *Journal of Mathematical Behavior*, 32(1), 69-82.
7. Schwartz, E. J., Pawelek, K. A., Harrington, K., **Cangelosi, R. A**., & Madrid, S. A., 2013. Immune Control of Equine Infectious Anemia Virus Infection by Cell-Mediated and Humoral Responses. *Applied Mathematics*, 4, 171-177.
8. **Cangelosi, R**. & Goriely, A., 2007. Component retention in a principal component analysis with application to cDNA microarray data. [Online]. Available from http://www.biology-direct.com/content/2/1/2

PROCEEDINGS

Olson, J., **Cangelosi, R. A**., Madrid, S., Cooper, S., & Hartter, B. (2011). Ambiguity of the negative sign. *Proceedings of the 33rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Reno, NV: The University of Nevada, Oct 20-23, 2011, Brosnan, P., Erchick, D. B., & Flevares, L. (Eds.).

Chaiya, I., Wollkind, D. J., **Cangelosi, R. A.**, Kealy-Dichone, B. J., & Rattanakul. 2015. Vegetative rhombic pattern formation driven by root suction for an interaction-diffusion plant-ground water model system in an arid environment. *ICAIM*. Contributed paper.

PAPERS PRESENTED

May 2016: Lefschetz Center for Dynamical Systems seminar at Brown University Talk: Vegetative Rhombic Pattern Formation Driven by Root Suction. (Wollkind, D.)

August 2015: International Congress on Industrial and Applied Mathematics, Beijing, China. Talk: Vegetative rhombic pattern formation driven by root suction for an interaction-diffusion plant-ground water model system in an arid environment. (Wollkind, D.)

May 2015: 16th Annual Meeting of the Northwest Section of the American Physical Society, Pullman, WA. Talk: Vegetative rhombic pattern formation driven by root suction

for an interaction-diffusion plant-ground water model system in an arid environment. (Wollkind, D.)

CONFERENCE PRESENTATIONS & WORKSHOPS

*Mathematics as a Laboratory Tool: Explorations with Delay Differential Equations*, Annual Meeting of the Pacific Northwest Section of the MAA. Spokane, WA, June 2017.

*Implementing Successful Research for Undergraduates*, PNW Project NExT Panel, Annual Meeting of the PNW MAA Section of the MAA, Tacoma, WA, April 2015.

Nonlinear stability analyses of Turing Patterns for a mussel-algae model system, Annual Meeting of the Pacific Northwest Section of the MAA. Missoula, MT, June 2014.

LOCAL PRESENTATIONS

Strange attractors: Cantor meets Lorenz, The Gonzaga University Math Club,

A quasi-steady-state solution for a target-cell limited viral dynamics model with a non-cytopathic effect, Spokane Regional Math Colloquium, April 6, 2016

Hard problems: And how to (nearly) solve them, The Gonzaga University Math Club, October 21, 2015.

Teaching Fellowships

National Science Foundation (DGE-0538652), Graduate Teaching Fellows in K-12 Education, Culturally Relevant Engineering Applications in Mathematics

RESEARCH ASSISTANTSHIPS

Washington State University — August 2012 – May 2013
College of Sciences
Supervisor: David J. Wollkind, Ph.D.

University of Arizona — May 2002 – July 2002
Department of Biomedical Engineering
Supervisor: James B. Hoying, Ph.D.

GRANTS

June 2017: Gonzaga Science Research Program, Chaos in an Iterative Model of Duopoly, Co-investigator, Joseph Kincanon, $3,000.

June 2001: Arizona Board of Regents Learner Centered Education grant, Tri-University Collaboration on Learner Centered Practice: Creating Learning Communities Among Faculty and Students, $5,000.

SERVICE TO THE GONZAGA COMMUNITY

<u>University & College of Arts and Science</u>

| | |
|---|---|
| Member, Center for Undergraduate Research and Creative Inquiry | Fall 2016 – Present |
| Member, Faculty Elections Committee | Fall 2017 – Present |
| Member, Benefits Committee | Summer 2017 – Present |
| Member, Innovation in Teaching and Curriculum Task Force | Fall 2015 – Spring 2016 |

## SERVICE TO THE GONZAGA COMMUNITY

Department of Mathematics

| | |
|---|---|
| Chair, Applied Mathematics Committee | Fall 2016 – Present |
| Member, Calculus Committee | Spring 2016 – Present |
| Department Liaison to the Foley Library | Fall 2015 – Present |
| Member, Faculty Search Committee | Fall 2017 – Present |
| Math Club Coordinator | Fall 2016 – Present |
| Member, Assessment Committee | Fall 2015 – Spring 2016 |
| Member, Faculty Search Committee | Fall 2015 – Spring 2016 |
| Liaison to Department of Education | Fall 2014 – Spring 2016 |
| Putnam Competition Club | Fall 2014 – Spring 2016 |
| Member, Faculty Search Committee | Fall 2014 – Spring 2015 |

## PROFESSIONAL AFFILIATIONS

Member, Society for Industrial and Applied Mathematics (SIAM)
Member, Mathematical Association of America (MAA)
Member, The American Mathematical Society (AMS)

## INDUSTRY EXPERIENCE

| | |
|---|---|
| Philadelphia Stock Exchange, Philadelphia, PA<br>Vice President, New Product Development | 1993 – 1999 |
| Delaware Investments, Inc., Philadelphia, PA<br>Assistant Vice President | 1991 – 1993 |
| Investor's Analysis, Inc., Paoli, PA<br>Senior Research Analyst | 1988 – 1991 |
| Delaware Investments, Inc., Philadelphia, PA<br>Regional Vice President | 1985 – 1988 |
| Butcher and Singer Securities, Philadelphia, PA<br>Account Executive | 1983 – 1984 |
| Thompson McKinnon Securities, Philadelphia, PA<br>Account Executive | 1980 – 1983 |