Pacific Northwest Conference on
Comprehensive Mathematical Modeling in the Natural and Engineering Sciences
Organized in the Spirit of
L. A. Segel

Tuesday – June 2nd

Welcome Reception

Honors Hall Lounge
5:00 – 10:00 PM

Wednesday, June 3rd

8:30 – 8:45	Introductory Remarks: **V.S. "Mano" Manoranjan**, Associate Dean of Sciences, Washington State University	
8:45 – 9:30	**Rebecca Bendick**, University of Montana	*Unchannelized collapse of thickened continental crust and metamorphic core complex formation*
9:30 – 10:15	**Louis Gross**, University of Tennessee	*Space and control in natural systems*
10:15 – 10:30	**Break**	
10:30 – 11:00	**Laurie Battle**, Montana Tech	*Competition as a factor in displacement of native cutthroat trout by nonnative rainbow and hybrid trout*
11:00 – 11:30	**Mikhail Khenner**, SUNY Buffalo	*Stability and dynamics of a dewetting solid film*
11:30 – 12:00	**Sarah Olson** & *Lisa Fauci*, Tulane University	*A model of CatSper channel-mediated Ca2+ entry into sperm*
12:00 – 1:45	**Lunch**	
1:45 – 2:30	**Rob Van Kirk**, Humboldt State University & *Laurie Battle, Montana Tech and Bill Schrader, Idaho Department of Fish & Game*	*Effects of flow regime and species interactions on displacement of native cutthroat trout by nonnative rainbow trout in the upper Snake River*
2:30 – 3:15	**Joan Wu**, *David Wollkind and Shuhui Dun*, Washington State University	*Using the Theis solution to evaluate ground-water flow in the Pullman-Moscow basaltic aquifer*
3:15 – 3:30	**Break**	
3:30 – 4:00	**Peter Borowsky**, University of British Columbia	*Robustness and reliability of a polymer model for the Min oscillations in E. coli*
4:00 – 4:30	**Heather Hardway**, Rice University	*Modeling genetic networks in fruit fly*
4:30 – 5:00	**Hong-Ming Yin**, Washington State University	*A phase-change problem with superheating*

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Thursday - June 4th

8:45 – 9:30	**Eric Ferm**, Los Alamos National Laboratory	*High explosive experiments and modeling applied to the problem of explosive initiation from a supersonic penetrator*
9:30 – 10:15	**Charlotte Omoto & Andrew Winters**, Washington State University	*Modeling malaria transmission: Exploring the impact of potential competition*
10:15 – 10:30	**Break**	
10:30 – 11:00	**Matthew Hudelson**, Washington State University	*Using Hosoya topological descriptors in cytochrome P-450 regioselectivity prediction*
11:00 – 11:30	**Katarina Jegdic**, *Jun Chen, & Cleopatra Christoforou,* University of Houston-Downtown	*Rarefaction wave interaction for the unsteady transonic small disturbance equations*
11:30 – 12:00	**Charles Maggio**, Tulane University	*Excitation-contraction driven peristalsis between uterine smooth muscle immersed boundary walls*
12:00 – 1:45	**Lunch**	
1:45 – 2:30	**Robert Dillon**, Washington State University	*Immersed boundary models of complex fluids-structure interaction in sperm and ciliary motility*
2:30 -3:15	**Jodi Mead**, Boise State University	*Uncertainty quantification and regularization of ill-posed problems applied to find soil moisture estimates in the Dry Creek watershed near Boise, ID*
3:15 – 3:30:	**Break**	
3:30 – 4:00	**Mark Schumaker**, Washington State University	*Monte Carlo simulation of the Q-cycle model of electron transport in photosynthesis*
4:00 – 4:30	**Emily Mei Tian**, Wright State University	*Electrodynamic instabilities in thin film patterning*
4:30 – 5:00	**Prashanth AK**, Institute of Advanced Study, Princeton	*Novel genomic regulatory mechanisms based on DNA duplex destabilization*

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Friday - June 5th

8:45 – 9:30	**Rachel Kuske**, University of British Columbia	*Transients stabilized by noise in biological models*
9:30 – 10:15	**Isaac Klapper**, Montana State University	*Microbially-induced mineralization in biofilm*
10:15 – 10:30	**Break**	
10:30 – 11:00	**Xingzhou Yang**, Mississippi State University	*Mucus transport and multiciliary dynamics*
11:00 – 11:30	**Elissa Schwartz,** Washington State University	*A stochastic model of retroviral escape from cytotoxic T lymphocyte response*
11:30 – 12:00	**Garrett Saunders**, Boise State University	*Weight selection by misfit surfaces for least squares estimation of hydraulic conductivity*
12:00 – 1:45	**Lunch**	
1:45 – 2:30	**Richard Jacob**, Pacific Northwest National Laboratory	*Pulmonary airflow: Modeling the unseen*
2:30 – 3:15	**Mei Zhu**, Pacific Lutheran University & *Sean M. Callahan and John S, Allen, University of Hawaii at Manoa*	*Maintenance of heterocyst patterning in a filamentous cyanobacterium*
3:15 – 3:30	**Break**	
3:30 – 4:15	**Lisa Fauci**, Tulane University	*Understanding swimming at low Reynolds numbers: Successes and Challenges*

6:00: Conference Banquet at the Hilltop

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Saturday - June 6th

9:00 – 9:45	**Leah Keshet**, University of British Columbia	*Models for regulation of cell motility and polarity*
9:45 – 10:30	**David Wollkind**, Washington State University, *Francisco Alvarado, Technologico de Monterrey, Campus Guadalajara, & Nichaphat Boonkorkuea and Yongwimon Lenbury, Mahidol University*	*Nonlinear stability analyses of vegetative pattern formation in an arid environment: Presented in the spirit of a testimonial to* ***Lee A. Segel***
10:30 – 10:45	**Break**	
10:45 – 12:00	***To whom are you passing the modeling torch?:*** A panel discussion Moderator: **Wei-Jen Luan Harrison**, American River College	