Monday, July 6

CP1
Contributed Presentation and Poster Hall (Available July 6 through July 17, 2020)

8:00 AM - 5:00 AM

The Contributed Presentation and Poster Hall will be available for the duration of the conference, July 6-17, 2020.

🆕 - **The Journey of a Single Polymer Chain to a Nanopore** abstract
Navid Afrasiabian and Colin Denniston, University of Western Ontario, Canada

🆕 - **Identifying Community Behavior by Analyzing Social Media Data** abstract
Roaa A. Alrowwad, Al al-Bayt University, Jordan

🆕 - **Database Annotation with Few Examples: An Atlas-Based Framework Using Diffeomorphic Registration of 3D Trees** abstract
Pierre-Louis Antonsanti, General Electric Healthcare, U.S. and Université de Paris, France; Joan Glaunes, Université Paris, France; Vincent Jugnon and Thomas Benseghir, GE Healthcare, U.S.

🆕 - **Iterative Equilibria in Simultaneous Voting Games** abstract
Samuel N. Baltz, University of Michigan, U.S.

🆕 - **Pushing the Boundaries: the Existence of Solutions for a Free Boundary Problem Modeling the Spread of Ecosystem Engineers** abstract
Maryam Basiri, University of Ottawa, Canada; Abbas Moameni, Carleton University, Canada; Frithjof Lutscher, University of Ottawa, Canada

🆕 - **Combinatorics-Based Characterization of Controllability for Bilinear Systems** abstract
Jr-Shin Li, Washington University, St. Louis, U.S.; *Gong Cheng* and Wei Zhang, Washington University in St. Louis, U.S.

🆕 - **Modeling the Prevalence of Juul and Other E-Cigarette Use** abstract
Sara M. Clifton, St. Olaf College, U.S.; Gabby Digan, Ruiyi Wang, and Elizabeth Wei, University of Illinois at Urbana-Champaign, U.S.

🆕 - **Assortment and Reciprocity Mechanisms for Promotion of Cooperation in a Model of Multilevel Selection** abstract
Daniel B. Cooney, Princeton University, U.S.

🆕 - **Progenitor Cell Differentiation As a Gradient Flow** abstract
Giovanni F. Crosta, University of Milano-Bicocca, Italy

🆕 - **A Hybrid Numerical Method for Modeling Shear Thinning Effect in Non-Newtonian Porous Media Flow** abstract
Prabir Daripa, Texas A&M University, U.S.

🆕 - **Mean Field Games Modeling of Carbon Emission Behavior and the Effect of Carbon Tax** abstract
Rene Carmona, *Gokce Dayanikli*, and Mathieu Lauriere, Princeton University, U.S.

🆕 - **Unsupervised Machine Learning Using Umap for Hums Data** abstract
Haley R. Dozier, Indu Shukla, Brandon Hansen, and William Bond, U.S. Army Engineer Research and Development Center, U.S.

🆕 - **Reliable and Efficient Model Reduction of Nonlinear PDEs with High-Dimensional Geometry Parametrizations** abstract
Eugene Du, University of Toronto Institute for Aerospace Studies, Canada; Masayuki Yano, University of Toronto, Canada

🆕 - **It's About Time: Vector Clocks and Distributed Systems** abstract
Sarah Dumnich, Saint Vincent College

🆕 - **Reliability Failure in Glucose - Insulin System** abstract
Deepjyoti Ghosh, William Ott, and Bhargav R. Karamched, University of Houston, U.S.; David Albers, University of Colorado, U.S.

NEW - **The W. T. and Idalia Reid Prize: Investigating Numerically the Exact Boundary Controllability of the Wave Equation: A Historical Perspective** abstract

Roland Glowinski, University of Houston, U.S.

NEW - **Approximations of cell-induced phase transitions in fibrous biomaterials: G-convergence analysis** abstract

Georgios Grekas, University of Minnesota, U.S.; Konstantinos Koumatos, University of Sussex, United Kingdom; Charalambos Makridakis, Foundation for Research & Technology-Hellas, Greece; Phoebus Rosakis, University of Crete, Greece

NEW - **Consistent Finite Difference Scheme for 1-D Nonlocal to Local Diffusion Problem** abstract

Amanda Gute, University of North Carolina, Charlotte, U.S.

NEW - **Computational Efficiency of Hamiltonian Monte Carlo for Genomic Prediction** abstract

Elizabeth J. Hale, Adriana Ortiz, Lauren M. White, and Nathan Albin, Kansas State University, U.S.; Phillip Alderman, Oklahoma State University, U.S.; Nora Bello and Stephen Welch, Kansas State University, U.S.

NEW - **Robust Asymptotic Growth in Stochastic Portfolio Theory under Risk Constraints** abstract

David Itkin and Martin Larsson, Carnegie Mellon University, U.S.

NEW - **Spatial Games of Fake News** abstract

Matthew I. Jones, Scott Pauls, and Feng Fu, Dartmouth College, U.S.

NEW - **Accelerated Calderón Preconditioning for Electromagnetic Scattering by Multiple Absorbing Dielectric Particles** abstract

Antigoni Kleanthous, Timo Betcke, and David Hewett, University College London, United Kingdom; Paul Escapil-Inchauspé, Pontificia Universidad Católica de Chile, Chile; Carlos Jerez-Hanckes, Universidad Adolfo Ibanez, Chile; Anthony Baran, Met Office and University of Hertfordshire, United Kingdom

NEW - **A Lattice Model for Chain-length Dependent Competitive Adsorption of a Polymer on a 3-Dimensional Spherical Surface** abstract

Sperydon Koumarianos, Neal Madras, and Ozzy Mermut, York University, Canada; Christopher Barrett, McGill University, Canada

NEW - **An Adaptive Least-Squares Finite Element Method for Viscoelastic Fluid Flows Past a Transverse Slot** abstract

Hsueh-Chen Lee, Wenzao Ursuline University of Languages, Taiwan; Hyesuk Lee, Clemson University, U.S.

NEW - **A Weno Based Numerical Method for Non-Linear Coupled Reaction-Convection-Diffusion System** abstract

Surya N. Maharana, Chittaranjan Mishra, and Manoranjan Mishra, Indian Institute of Technology Ropar, India

NEW - **Effects of Habitat Connectivity and Local Variation in Fishing Rate on Coral Reef Health with Implications for Marine Protected Area Design** abstract

Russell Milne, University of Waterloo, Canada

NEW - **Numerical Study of Mixing Performance in a Moving Baffle Oscillatory Baffled Reactor** abstract

Hamid Mortazavi and Leila Pakzad, Lakehead University, Canada

NEW - **Theoretical Game Modelling in the Insurance Sector** abstract

Leonard Mushunje, Midlands State University, Zimbabwe

NEW - **Advances in Computational Methods for Modelling Groundwater Flow Around Point Sources of Pollutants** abstract

William Nevils and Theodore Hromadka, United States Military Academy, U.S.

NEW - **XVA Valuation under Market Illiquidity** abstract

Weijie Pang, McMaster University, Canada; Stephan Sturm, Worcester Polytechnic Institute, U.S.

NEW - **Phytoplankton Aggregations: A Run-and-Tumble Model with Autochemotaxis** abstract

Nicholas J. Russell and Louis F. Rossi, University of Delaware, U.S.

NEW - **Parallel Skeletonization for Integral Equations in Evolving Multiply-Connected Domains** abstract

John P. Ryan and Anil Damle, Cornell University, U.S.

NEW - **Decoupled States in Networks of Limit Cycle Oscillators** abstract

Anastasiya Salova, University of California, Davis, U.S.

NEW - **Hybrid Numerical Scheme for Reactive Flows with Singularity** abstract

Vandita Sharma and Manoranjan Mishra, Indian Institute of Technology Ropar, India

NEW - Model Reduction for Parameterized Time-Dependent Nonlinear PDEs [abstract](#)
Michael K. Sleeman and Masayuki Yano, University of Toronto, Canada

NEW - A New Theory of Fractional Differential Calculus and Fractional Sobolev Spaces [abstract](#)
Mitchell Sutton, University of Tennessee, Knoxville, U.S.

NEW - Coupling of Flow and Deformation in Porous Media at the Network Scale [abstract](#)
Naren Vohra and Malgorzata Peszynska, Oregon State University, U.S.

NEW - Quasi-Newton Methods for Infinite-Dimensional Inverse Problems Governed by PDEs [abstract](#)
Radoslav G. Vuchkov, University of California, Merced, U.S.

NEW - The SUNDIALS Suite of Nonlinear and Differential - Algebraic Equation Solvers [abstract](#)
Carol S. Woodward, Cody J. Balos, and David J. Gardner, Lawrence Livermore National Laboratory, U.S.; Daniel R. Reynolds, Southern Methodist University, U.S.

NEW - Time Integrators for Weak Turbulence [abstract](#)
Lucia Yang, University of Colorado Boulder, U.S.

NEW - Mathematical Modeling and Analysis of Dopamine Neurons [abstract](#)
Na Yu, Ryerson University, Canada

NEW - The Effect Landscape Fragmentation on Turing Pattern Formation [abstract](#)
Nazanin Zaker and Frithjof Lutscher, University of Ottawa, Canada

NEW - Spatio-Stochastic Adaptation for Discontinuous Galerkin Methods [abstract](#)
Geoff Donoghue and Masayuki Yano, University of Toronto, Canada

NEW - Slow Passage Through Resonance in the Fractional Order Driven Damped Oscillator [abstract](#)
Seyeon Lee and Bongsoo Jang, Ulsan National Institute of Science and Technology, South Korea

NEW - An Agent-Based Model of Cell-Type Specific and Pain-Related Neural Activity in the Amygdala During Neuropathic Pain [abstract](#)
Rachael Miller Neilan and Gabrielle Majetic, Duquesne University, U.S.; Anisha Adke and Yarimar Carrasquillo, National Institutes of Health, U.S.; Benedict Kolber, Duquesne University, U.S.

NEW - Normalizing Flows Via Mean Field Games and Hamilton-Jacobi-Bellman Equations [abstract](#)
Derek Onken, Emory University, U.S.

NEW - The Larc (Linear Algebra via Recursive Compression) Package [abstract](#)
Jenny Zito, Steve Cuccaro, and Mark Pleszkoch, Center for Computing Sciences, U.S.

NEW - Algebraic Structure Study of Vector Fields Near the Triple-Zero Bifurcation Point. [abstract](#)
Fahimeh Mokhtari, Vrije Universiteit Amsterdam, The Netherlands

NEW - Role of Hydrodynamics in Chemotaxis of Bacterial Populations [abstract](#)
Shawn D. Ryan, Cleveland State University, U.S.

| [AN20 Home 2020](#) | [Program](#) | [Speaker Index](#) | [Hotel & Transportation](#) | [Registration](#) |

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