Research Computing Scholarly Products

The following are Research Outputs from all resources supported since 2010 that have been reported to Research Computing staff. To list your publications, presentations, grants, awards, students graduated, etc, please contact Ryan Bradley.

In early 2021, the computational cluster Hawk that was enabled by NSF support (Award #2019035) was put into production. A significant portion of the scholarly work produced since Hawk was deployed in 2021 were wholly or partly made possible by this computational resource, which is made available as a no-cost discovery platform for Lehigh University researchers, educators, and students.

Publications


Presentations

- Cytoskeletal and membrane flows for cell motility and polarization (D. Vavylonis), Talk at Mathematics of the Cell: Integrating Signaling, Transport and Mechanics, Banff International Research Station October 2021
- Discrete mechanical model of lamellipodial actin networks (David Rutkowski, Dimitrios Vavylonis), Talk at American Physical Society March Meeting March 2021
- Model of dendritic actin network with distributed turnover and structural remodeling (Danielle Holz, Aaron Hall, Dimitrios Vavylonis), Talk at American Physical Society March Meeting March 2021
- Coarse-grained simulations of actin polymerization (Aaron Hall, Brandon Horan, Dimitrios Vavylonis), Talk at American Physical Society March Meeting March 2021
- Discrete mechanical model of lamellipodial actin networks (David Rutkowski, Dimitrios Vavylonis), Talk at American Physical Society March Meeting March 2021
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- Understanding Structure-Function Relationships in Disordered Materials (presentation, L.A. Fredin) North East Centre for Energy Materials (NECEM) and Newcastle University School of Natural Environmental Sciences, Virtual.
- “Morphologies of cross-linked actin filament networks in confinement,” (D. Vavylonis and M. Adeli Koudehi) Invited talk, 8th World Congress of Biomechanics, Dublin, Ireland, July 2018
- “Modeling Actin Dynamics in Cell Motility and Cell Division”, Invited talk, Generation and Control of Forces in Cells, NORDITA workshop, Stockholm, Sweden, June 2018
- “Simulations of Branching Actin Filament Networks at the Leading Edge of Moving Cells” (poster presentation, A. Hall, D. Holz, D. Vavylonis) 2018 American Physical Society March Meeting, Los Angeles CA.

Students Graduated

1. Peter Schwarzenberg, Development and Validation of Virtual Mechanical Testing of Bone Fracture Healing, Ph.D. Dissertation (2021)
13. Baiou Shi, Molecular Dynamics Studies on dynamic wetting, droplet rapid contact line advancement and nanosuspension drop self-pinning phenomenon, Ph. D. Dissertation (2017)

Grants Submitted/Awarded

- Hannah Dailey (PI), CAREER: Multiscale Mechanical Characterization of Bone Fracture Callus, National Science Foundation (CMMI-1943287)
- Vavylonis Dimitrios (PI) NIH R35GM136372: Modeling mechanisms in cytokinesis, cell polarization and motility (4/1/20-3/31/25)
- Vavylonis Dimitrios (PI) NIH R01GM114201: Theoretical and experimental studies of distributed actin turnover (6/1/16-5/3/21)
- Yue Yu (PI), A Framework for Multiscale/Multiphysics Mathematical Modeling of Cerebral Aneurysm Rupture, National Science Foundation (08/01 /2016-07/31/2020)
- Yue Yu (PI), A Multiphysics Mathematical Framework on Modeling Cerebral Aneurysms, Simons Foundation Collaboration Grant (09/01/2015-08 /31/2017)
- Yue Yu (PI), CAREER: A Local–Nonlocal Coupling Framework for Tissue Damage in Fluid–Structure Interaction, National Science Foundation (09 /01/2018-08/31/2023)