

Patrick S. Eastham

CONTACT INFORMATION	KLB 419, FSU Tallahassee, FL 32304 https://peastham.info	(770) 687-8182 peastham@math.fsu.edu
EDUCATION	Ph.D. Mathematics , Florida State University, Tallahassee Advisors: M. Nicholas J. Moore and Nicholas G. Cogan M.S. Mathematics , FSU B.S. Applied & Computational Mathematics , FSU B.S. Psychology , FSU	2020 2017 2015
RESEARCH INTERESTS	Applied and computational mathematics; Fluid-structure interactions, particularly in biological, chemical and geo-physical applications; Complex fluids, particularly effect of non-uniform viscosity on phoretic locomotion	
RESEARCH EXPERIENCE	NSF GRFP Fellow <ul style="list-style-type: none">Developed theoretical framework for modeling chemistry-driven fluid-structure interaction problemsCreated complex fluids finite element library eFEMpart Research Assistant Dr. Kouros Shoele, FSU Mechanical Engineering <ul style="list-style-type: none">Investigated effect of variable viscosity on squirmer locomotion and feeding performance NSF REU Dr. Arash Fahim, FSU Mathematics <ul style="list-style-type: none">Evaluated correlated options pricing; coded in C++Written report available upon request Research Assistant Dr. Zuoxin Wang Lab, FSU Neuroscience <ul style="list-style-type: none">Ran Immunohistochemistry experimentsSurgical experience with Prairie Voles	2017–2020 2017 2014–15 2013
PUBLICATIONS	P.S. Eastham and K. Shoele (2020) <i>Axisymmetric squirmers in Stokes fluid with non-uniform viscosity</i> , <i>Physical Review Fluids</i> , 5 , 063102. [link] P.S. Eastham , M. Moore, N. Cogan, Q. Wang, & O. Steinbock (2020) <i>Multiphase modelling of precipitation-induced membrane formation</i> . <i>Journal of Fluid Mechanics</i> , 888, A20. [link] K. Shoele and P.S. Eastham (2018) <i>Effects of nonuniform viscosity on ciliary locomotion</i> . <i>Physical Review Fluids</i> 3 043101 [link] A.S. Smith, M. Tabaa, K. Lei, P.S. Eastham , M.J. Butler, L. Linton, R. Altshuler, Y. Liu, and Z. Wang (2016) <i>Local oxytocin tempers anxiety by activating GABAA receptors in the hypothalamic paraventricular nucleus</i> . <i>Psychoneuroendocrinology</i> 63 50-58 [link]	

PROGRAMMING & SOFTWARE	Open Source Packages	
	eFEMpart.jl	Finite element library for complex fluid dynamics written in Julia [Github link]
	CircGeometry.jl	Generates fine-resolution porous objects [Github link]
	Languages	
	Proficient:	Julia, C++, Matlab, L ^A T _E X
	Familiar:	Fortran, XPP, Python, R
FELLOWSHIPS & AWARDS	Graduate Research Fellowship	2017–2020
	National Science Foundation	
	Distinguished Teaching Assistant	2020
	Florida State University Mathematics	
	First Place, Graduate Research Week Flash Talks	March 2019
Florida State University Mathematics		
	1st-year Graduate Student Grant	2016
	Florida State University	
	Bess H. Ward Honors Thesis Award	2015
	Florida State University	
PRESENTATIONS	<i>A framework for simulating precipitate reactions in microfluidic devices</i> [link]	
	SMB 2020, August 2020	
	Virtual	
	<i>Multiphase modeling of precipitation-induced membrane formation</i> [link]	
	APS DFD 72 nd Annual Meeting, November 2019	
	Seattle, WA	
	<i>Machine Learning Basics I</i> [link]	
	Machine Learning Seminar, November 2019	
	Tallahassee, FL	
	<i>Modeling of Precipitation Reactions in a Microfluidic Chamber</i> [link]	
First Place Winner		
Graduate Research Week Flash Talks, May 2019		
Tallahassee, FL		
<i>Coupling between swimming and feeding efficiencies of ellipsoidal squirmers in a nutrient-dependent viscous flow</i> [link]		
APS DFD 71 st Annual Meeting, November 2018		
Atlanta, GA		
<i>Ciliary Locomotion in Varying Viscosity Flow</i> [link]		
APS DFD 70 th Annual Meeting, November 2017		
Denver, CO		
<i>Effects of quasi-steady-state reduction on biophysical models with oscillations</i>		
Dynamical Systems Seminar, November 2017		
Tallahassee, FL		
<i>Theory and Applications of Bubble Dynamics</i>		
Biomathematics Seminar, October 2016		
Tallahassee, FL		

TEACHING EXPERIENCE	Calculus 3, Instructor of Record	2019
	Calculus 1, Instructor of Record	2018
	PreCalculus, Instructor of Record	2016
	Biocalculus, Teaching Assistant	2016
	Precalculus Lab, Teaching Assistant	2015–16
MENTORING & LEADERSHIP	AWM Undergraduate Student Mentoring Mentor to Kaitlyn Henninger, undergraduate student at Florida State University.	2019–2020
	Neuroscience Undergraduate Students Association Founder and President	2014–15
	Undergraduate Research Opportunities Program Instructor of 1-credit course; Provided mentorship to lower under- graduates who pursued their own research with FSU faculty	2014–15
REFERENCES	M. Nicholas J. Moore Associate Professor Department of Mathematics, United States Naval Academy moorem@usna.edu	
	Nicholas G. Cogan Associate Professor Department of Mathematics, Florida State University cogan@math.fsu.edu	
	Kourosh Shoele Assistant Professor FAMU-FSU College of Engineering kshoele@fsu.edu	