Fourth Joint Alabama-Florida Conference on Differential Equations, Dynamical Systems and Applications

Florida International University
May 18 - 19, 2026

Graduate Workshop
May 15 - 17, 2026

Organizing Committee

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Contents

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FOR YOUR INFORMATION

The most up to date information can be found at go.fiu.edu/jaf

Parking and Lodging

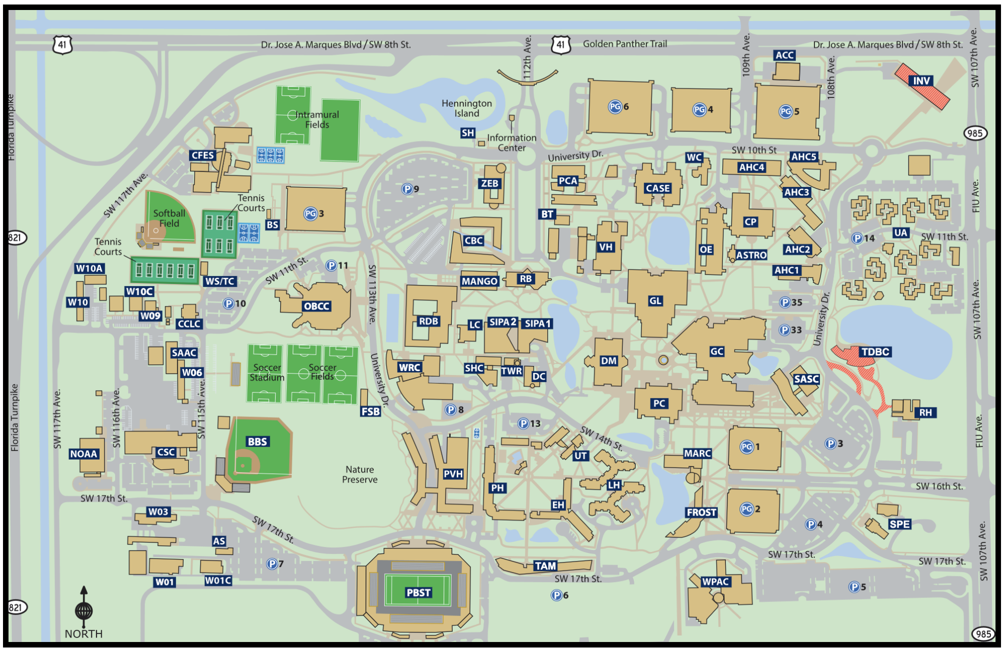
1. This event is held at the Modesto A. Maidique main Campus (MMC) of FIU.
2. Students will be staying at University Towers (across the DM building and close to GC, SASC, SIPA)
3. Speakers are staying at the Comfort Inn Suites at Kendall hotel.

Food

1. FIU's on-campus restaurant hour link
2. We recommend **Versailles** (cuban) and **Dr. Limon** (peruvian) while you're in Miami if you are able (there are of course many more Latin-american flavors around)
3. Other suggestions near the campus: Pub-Subs (a sandwich from Publix across the street east of campus), Pho 79, 107 Taste, Tiagos Tacos, and Diced.

Building Shortening

1. SASC - Student Academic Success Center
2. GC - Graham Center (Our University Center)
3. SIPA - School of International and Public Affairs
4. DM - Deuxieme Maison
5. UT - University Towers
6. PG# - Parking Garage #
7. ASTRO - Astronomy Building



WORKSHOP SCHEDULE

All lectures are in SASC 352 with all breaks in SASC 351

DAY 1, MAY 15

Time	Speaker / Event
8:30 - 9:00 AM	Coffee & Pastries for grad students in DM 409A
9:00 - 9:15	Grads walk from DM to SASC
9:15 - 9:30	Official opening in SASC 352
9:30 - 10:10	Lighting Round (* grad students listed below)
10:15 - 11:45	Maria Eugenia Martinez, Lecture 1 (water waves)
11:45 - 12:00	Conference remarks/logistics
12:00 - 1:30	Lunch (catered, in SASC 351)
1:30 - 3:00	Maria Eugenia Martinez, Lecture 2 (water waves)
3:00 - 3:30	Break
3:30 - 5:00	Justin Holmer, Lecture 1 (solitons/stability)
5:00 - 7:00	Poster Setup-Mockup session Astro 101 / dinner (on your own)
8:00 - 9:00	Group work (grads/juniors) in UT towers or DM 409A (math dept)

DAY 2, MAY 16

Time	Speaker / Event
9:00 - 10:30	Maria Eugenia Martinez, Lecture 3 (water waves)
10:30 - 11:00	Break
11:00 - 12:00	Aslihan Demirkaya, Amazon
12:00 - 1:30	Lunch (catered), Panel discussion and portfolio practice
1:30 - 3:00	Todd Kapitula, Lecture 1 (spectral theory)
3:00 - 3:30	Break
3:30 - 5:00	Justin Holmer, Lecture 2 (solitons / stability)
5:00 - 7:00	Dinner (on your own)
8:00 - 9:00	Group Work (grads/juniors) in UT towers or DM 409A (math dept)

DAY 3, MAY 17

Time	Speaker / Event
8:30 - 10:00	Todd Kapitula, Lecture 2 (spectral theory)
10:00 - 10:30	Break
10:30 - 12:00	Justin Holmer, Lecture 3 (solitons / stability)
12:00 - 1:30	Lunch (catered, pizza)
1:30 - 3:00	Todd Kapitula, Lecture 3 (spectral theory)
3:00 - 3:30	Break
3:30 - 5:00	Justin Holmer, Lecture 4 (solitons / stability)
5:00 - 7:00	Grad workshop dinner (paella)

Lighting Round Participants (Friday, 9;30am, SASC 352)

1. Ulfat Ajaz .... *University of Alabama - Birmingham*
2. David Andrade .... *Universidad del Rosario - Bogotá*
3. Dil Aways .... *University of Alabama at Birmingham*
4. Kevin A. Ayala Trullo .... *University of Puerto Rico at Mayaguez*
5. Melissa De Jesus .... *Florida International University*
6. Toma Debnath .... *Florida State University*
7. Maliheh Farziharomi .... *University of Alabama at Birmingham*
8. Carson Givens .... *University of Alabama*
9. Kaylie Green .... *Florida State University*
10. Chandler Haight .... *Florida International University*
11. Christian Hirni .... *University of Missouri*
12. Zachary Lee .... *The University of Texas at Austin*
13. Xinlu Celine Li .... *University of Alabama at Birmingham*
14. Vasileios Nektarios Oikonomou .... *University of Missouri-Columbia*
15. Scott Payne .... *Florida State University*
16. Iryna Petrenko .... *Florida International University*
17. Victor A. Pineda Ramirez .... *University of Puerto Rico - Mayagüez*
18. Kiersten Ratcliff .... *The University of Alabama at Birmingham*
19. Callie Reid .... *Florida State University*
20. Alex David Rodriguez .... *Florida International University*
21. Alexander Sampson .... *Florida State University*
22. Muhammad Saqib .... *University of Alabama - Birmingham*
23. Diana Son .... *Florida International University*
24. Justin Toyota .... *University of Texas at Austin*
25. Shuoyang Wang .... *McMaster University*
26. Shilai Yang .... *Florida State University*

JAF CONFERENCE SCHEDULE

DAY 1: MAY 18, 2026 Location: SIPA 100

Type	Time	Speaker / Event
	8:30am	Opening Remarks
Plenary	**8:40–9:40am**	**Daniel Tataru**
	9:40–10:10am	Gong Chen
Break	10:10–10:30am	Coffee Break
	10:30–11:00am	Nicholas Ossi
	11:00–11:30am	Oussama Landoulsi
	11:30–12:00pm	Yuri Latushkin
Lunch	12:00–1:30pm	Lunch (catered)
Plenary	**1:30–2:30pm**	**Mihaela Ifrim**
	2:30–3:00pm	Sam Walsh
Break	3:00–3:30pm	Coffee Break
	3:30–4:00pm	Stanley Snelson
	4:00–4:30pm	Zhiyuan Zhang
	4:30–5:00pm	Maja Taskovic
Posters	5:00–7:00pm	Poster Session in ASTRO 101
Dinner	7:00–9:30pm	Conference Dinner at Faculty Club

DAY 2: MAY 19, 2026 Location: SASC 352

Type	Time	Speaker / Event
Plenary	**9:00–10:00am**	**Lev Kapitanski**
	10:00–10:30am	Abba Ramadan
Break	10:30–11:00am	Coffee Break
Plenary	**11:00–12:00pm**	**Javier Gomez-Serrano**
Lunch + Q&A	12:00–1:30pm	Lunch (catered) and Q&A Session
	1:30–2:00pm	Shu Liu
	2:00–2:30pm	Vagahn Manukian
	2:30–3:00pm	Montie Avery
Break	3:00–3:30pm	Coffee Break
	3:30–4:00pm	Anna Ghazaryan
	4:00–4:30pm	Wen Feng
	4:30–5:00pm	Atanas Stefanov
	5:00pm	**The END of 4th JAF**

PLENARY SPEAKER ABSTRACTS

The global well-posedness conjecture for 1D strongly nonlinear dispersive flows

Daniel Tataru

UC Berkeley

May 18, 8:40 AM, SIPA 100

Abstract: The key property of linear dispersive flows is that waves with different frequencies travel with different group velocities, which leads to the phenomena of dispersive decay. Nonlinear dispersive flows also allow for interactions of linear waves, and their long time behavior is determined by the balance of linear dispersion on one hand, and nonlinear effects on the other hand. The first goal of this talk will be to describe a recent set of conjectures which aim to characterize the global well-posedness and the dispersive properties of solutions in the most difficult case when the nonlinear effects are dominant, assuming only small initial data. This covers many interesting physical models, yet, as recently as a few years ago, there was no clue even as to what one might reasonably expect. The second objective of the talk will be to describe some very recent results in this direction, in joint work with Mihaela Ifrim, focusing on the generalized modified Benjamin-Ono flows.

Global solutions for 3D gravity water waves

Mihaela Ifrim

U Wisconsin – Madison

May 18, 1:30 PM, SIPA 100

Abstract: The aim of this talk is to present work in progress on the problem of local and global well-posedness for gravity water waves in the small-data, low-regularity regime, for fluids of infinite depth and infinite extent in spatial dimensions $n \geq 3$. More specifically, our ongoing work seeks to simultaneously achieve substantial improvements in both the local and global theory for these equations, reaching nearly optimal Sobolev regularity thresholds. On the local side, we obtain sharp improvements in the well-posedness theory for the gravity wave problem: up to scaling regularity in dimensions $n \geq 4$, and within $1/12$ of a derivative above scaling in dimension $n = 3$. On the global side, we establish global well-posedness for small initial data in a critical Besov space, without requiring spatial localization assumptions. These results represent an important advance in the study of nonlinear dispersive partial differential equations, particularly within the framework of the "Nonlocalized Data Global Well-posedness Conjecture" proposed by Tataru and Ifrim in recent years, and provide significant progress toward several longstanding open problems in the theory of water waves.

Cauchy problem for the simplest neo-Hookean material

Lev Kapitanski

University of Miami

May 19, 9:00 AM, SASC 352

Abstract: The equations of motion of an isotropic, incompressible neo-Hookean solid arise from a variational principle with the Lagrangian whose kinetic energy part is the same as in the case of the ideal fluid. The potential energy part, however, makes it possible to prove well-posedness for solutions with regularity below the critical one for the Euler equations. In this talk I will present the local well-posedness results obtained in my joint work with Lars Andersson.

Discovery of Unstable Singularities

Javier Gomez-Serrano

Brown University

May 19, 11:00 AM, SASC 352

Abstract: In this talk, I will explain how to construct numerically several new unstable singularities to certain equations in fluids (CCF, IPM, Boussinesq) using machine learning methods. Our approach combines curated machine learning architectures and training schemes with a high-precision Gauss-Newton optimizer, achieving accuracies that significantly surpass previous work across all discovered solutions, reaching near double-float machine precision, attaining a level of accuracy constrained only by the round-off errors of the GPU hardware, potentially leading to rigorous mathematical validation via computer-assisted proofs.

GRADUATE WORKSHOP ABSTRACTS

From Academia to Industry AI: Transforming Job Applications with Intelligent Automation

Aslihan Demirkaya

Amazon *May 16, 11:00 AM, SASC 352*

Abstract: I'll open with my own transition from academic mathematics to industry data science and AI, highlighting the mindset shifts and transferable skills that shaped that journey. I'll then connect that story to AI's broader role in Silicon Valley today: how it is reshaping expectations, accelerating workflows, and making it faster and more effective to build intelligent tools than with traditional approaches. For the demo, I'll introduce the Job Application with AI package and show how researchers and students can build tools like this independently with AI assistance. The demo will illustrate how AI can automate and enhance the job application process, transforming academic strengths into compelling resumes, tailored cover letters, and stronger application materials.

The Zakharov Water Wave System and the Interaction of Solitary Waves with changes in the bottom

Maria Eugenia Martinez

University of Santiago, Chile *May 15-16, 3 lectures, SASC 352*

Abstract: The Zakharov water wave system is a model that describes the motion of an incompressible and irrotational fluid under the influence of gravity, bounded below by a rigid bottom and above by a free surface. On the other hand, solitary waves are localized and stable disturbances that propagate through a medium without changing shape, an intriguing feature that makes them fundamental in many water wave models.

While solitary waves are well understood for the water wave system over a flat bottom, we are interested in analyzing what happens when the bottom topography changes (for instance, when the wave encounters a sudden elevation or depression in the seabed). This leads to an interaction regime between the wave and the variable bottom, in which both the speed and the shape of the wave evolve dynamically.

To this end, in this mini-course we will study the derivation of the system and the tools needed to understand the behavior of its solitary waves. Finally, we will explore how these waves behave when the bottom of the fluid varies.

Solitons and Stability in nonlinear dispersive PDE

Justin Holmer

Brown University

May 15-17, 4 lectures, SASC 352

Abstract: We discuss several standard nonlinear dispersive PDEs and examine their solitary wave solutions.

Spectral Stability in nonlinear waves

Todd Kapitula

Calvin University

May 16-17, 3 lectures, SASC 352

Abstract: To determine the nonlinear stability of localized waves in evolution equations a first step is often locating the spectrum of the linearization about the wave. It is often the case that finding the essential (continuous) spectrum is an algebraic exercise. However, locating the point spectrum can be much more challenging. In my lectures I will focus on constructing: (i) an index to count the total number of unstable eigenvalues for Hamiltonian eigenvalue problems, (ii) an analytic function whose zeros correspond to point eigenvalues (a generalization of the characteristic polynomial for matrices), and (iii) a meromorphic function whose zeros correspond to eigenvalue, and where the sign of the derivative gives the Krein signature for a purely imaginary eigenvalue.

INVITED SPEAKER ABSTRACTS

Selection of Pushed Pattern-Forming Fronts

Montie Avery
Emory University
May 19, 2:30 PM, SASC 352

Abstract: Complex coherent structures in physical systems often form after a homogeneous background state becomes unstable. When the transition out of the unstable state is seeded by a spatially localized perturbation, this perturbation grows and forms an invasion front, which propagates into the unstable state and selects a new state in its wake. The marginal stability conjecture asserts that the propagation speed is the unique speed for which the associated invasion front solution is marginally spectrally stable. In many cases, propagation at a fixed speed combines with oscillatory dynamics in either the leading edge or the wake of the invasion process to generate a spatially periodic pattern. Universal wavenumber selection laws predict the wavelength of this pattern through an appropriate combination of the selected speed and the frequency of the temporal oscillations. We explore this phenomenon in the FitzHugh-Nagumo system, a prototypical model for large amplitude pattern formation. In this setting, we give the first rigorous proof of the marginal stability conjecture and associated wavenumber selection laws for any pattern-forming invasion process.

Global internal mode dynamics for the 1D quartic Klein-Gordon equation

Gong Chen
Georgia Institute of Technology
May 18, 9:40 PM, SIPA 100

Abstract: We study the quartic Klein–Gordon equations with a potential in one space dimension as model problems and establish a global description of internal mode dynamics and radiation damping. It is well-known that internal modes not only decay slowly, but their amplitudes can also lose smallness at large times; combined with the slow dispersive decay in 1 dimension, this makes the global analysis particularly delicate. Our approach is based on distorted Fourier transforms, normal form transformations, together with a collection of refined dispersive decay and smoothing estimates, which we exploit even at the level of the internal mode equation itself. This a joint work with Gael Diebou, Adilbek Kairzhan and Fabio Pusateri.

Nonlinear stability for the incompressible MHD system and Oldroyd-B models

Wen Feng

Sam Houston State University *May 19, 4:00 PM, SASC 352*

Abstract: Electrically conducting fluids such as plasmas, liquid metals and salt water are modeled by the magneto-hydrodynamic (MHD) equations. The MHD system is a combination of the Navier-Stokes equations and Maxwell's equations. In this talk, we will discuss the stabilization for the incompressible MHD system with partial dissipation. We show the stability result on the perturbations around a background magnetic field. The Oldroyd-B system models visco-elastic fluids. We will then discuss the small data global well-posedness for the 2D Oldroyd-B system with partial dissipation.

Fronts in a mussel-algae interaction model

Anna Ghazaryan

Miami University, Ohio *May 19, 3:30 PM, SASC 352*

Abstract: We consider a predator–prey model describing mussels feeding on algae. Previous results established the existence of families of front-type solutions in certain parameter regimes. The present work focuses on a different parameter regime in which phenomenologically distinct fronts are shown to exist. These fronts are constructed as perturbations of fronts arising in a Fisher-KPP-type scalar equation, using geometric singular perturbation theory.

Equivariant stability of vortices in Manton's Chern-Simons-Schrödinger system on the hyperbolic plane

Oussama Landoulsi

University of Massachusetts – Amherst *May 18, 11:00 AM, SIPA 100*

Abstract: In this talk, we will discuss the dynamics of magnetic vortices on the hyperbolic plane for a Chern–Simons–Schrödinger system introduced by Manton. We will focus on the self-dual, or Bogomolny, regime and restrict attention to equivariant solutions. In this setting, the system admits explicit vortex solutions of an arbitrary degree. For each integer degree, we will show that the corresponding equivariant vortex is asymptotically stable under small perturbations.

Resonances and solutions of the abstract wave equations

Yuri Latushkin

University of Missouri *May 18, 11:30 AM, SIPA 100*

Abstract: In this joint work with Alin Pogan (Miami University) we study the general abstract wave equation with the elastic operator being an unbounded operator generating cosine family on a Banach space, and derive a representation of the solutions to the equation in terms of resonances associated with the operator. The representation generalizes a well known case of the self-adjoint Schrödinger operator described in details in the book by Dyatlov and Zworski on resonances. Our abstract representation is based on the use of Laplace transform rather than the spectral theorem for self-adjoint operators, and involves Frechet spaces rather than spaces of compactly supported functions. Also, we study resonances of one dimensional Schrodinger operators with complex matrix valued square well potentials, complex transcendental equations for the resonances, their distribution, their multiplicity, and a version of the Weyl Law.

A Generative Approach to Simulating Hamiltonian Flows on the Probability Manifold

Shu Liu

Florida State University *May 19, 1:30 PM, SASC 352*

Abstract: In this work, we propose a generative approach for simulating the Wasserstein Hamiltonian flow (WHF), a Hamiltonian system defined on the probability density manifold that encompasses several well-known partial differential equation (PDE) systems including Wasserstein geodesic equation and the Schrödinger equation. We represent the solution via a push-forward map parameterized by finite-dimensional variables. By pulling back the Hamiltonian to the parameter space Θ, we reduce the WHF to a finite-dimensional Hamiltonian system on Θ. We then establish theoretical error bounds for the resulting continuous-time approximation. For implementation, we parameterize the push-forward map using neural networks and evolve the dynamics with a fully deterministic symplectic integrator, thereby avoiding stochastic gradient descent–based training. The resulting algorithm serves as a scalable generative model capable of producing both samples from the time-marginal distributions of WHF and particle-wise trajectories of the associated Hamiltonian system.

Traveling Waves in an Epidemiological Model with Saturating Treatment

Vahagn Manukian

Miami University, Ohio *May 19, 2:00 PM, SASC 352*

Abstract: In a diffusive epidemiological model with saturating treatment, we demonstrate the existence of traveling wave solutions. When the diffusion rate of the infected population is significantly higher than that of the susceptible population, we show that the underlying dynamics of these patterns are governed by a modified version of the Burgers–Huxley equation, and propagating fronts of infection exist. We also show the existence of wavetrain solutions in this regime. The reciprocal case leads to a phenomenologically different traveling front-forming mechanism.

Lump-mean field interactions in the Kadomtsev-Petviashvili equation

Nicholas Ossi

University of Buffalo *May 18, 10:30 AM, SIPA 100*

Abstract: The Kadomtsev-Petviashvili I (KPI) equation is a prototypical nonlinear wave equation in 2+1 dimensions that possesses stable localized rational solutions known as lumps. We derive a hyperbolic system of four quasi-linear partial differential equations that describes the modulations of a lump in the presence of a slowly varying mean field. The system is applied to characterize in detail the interaction of a lump with a rarefaction wave.

From Curve Shortening to Curve Lengthening: A Bifurcation in Modally Filtered Dispersive Systems

Abba Ramadan

Univ of Alabama – Tuscaloosa *May 19, 10:00 AM, SASC 352*

Abstract: The parametric nonlinear Schrödinger (PNLS) equation, a model for optical parametric oscillators and parametrically forced waves, supports dark-soliton front solutions whose interface dynamics undergo a striking bifurcation: as a parameter μ crosses zero, motion by mean curvature transitions to motion against curvature, driving interface elongation, meandering, and self-intersection. We show that this bifurcation is structurally stable under a broad class of modal damping operators. Specifically, replacing the constant damping $\mathcal{M} = \beta I$ of the PNLS with any operator of the form $\mathcal{M} = \mathcal{S}(\mathcal{N}_{-})$, where $\mathcal{S}$ is a bounded nondecreasing spectral function, preserves both the linear stability of the front and the curve lengthening bifurcation. The key analytic mechanism is that the monotonicity of $\mathcal{S}$ enforces a positivity property of a constrained inverse operator, which controls the real point spectrum of the linearization. The Willmore regularization coefficient $\nu > 0$ — essential for local well-posedness after bifurcation — is shown to persist uniformly for small $|\mu|$.

Global regularity for the relativistic Vlasov-Maxwell-Landau system

Stanley Snelson
Florida Institue of Technology
May 18, 3:30 PM, SIPA 100

Abstract: The relativistic Vlasov-Maxwell-Landau system models the dynamics of a dilute hot plasma whose particles interact through collisions and through their self-consistent electromagnetic field. In this talk, we present global regularity estimates for the density and EM field that hold even in the far-from-equilibrium case. This problem features an interesting tug-of-war between the smoothing properties of Landau collisions and the hyperbolic behavior of the Maxwell system.

On the global stability of viscous rarefaction waves for a parabolic-elliptic system

Atanas Stefanov
University of Alabama – Birmingham
May 19, 4:30 PM, SASC 352

Abstract: We consider a model for the hydrodynamic of a radiating gas, subject to viscosity and thermal conductivity. We show that the viscous rarefaction waves (connecting two separate states at both infinities) are globally stable, in the sense that any (large) Cauchy data with such behavior produces solutions that converge to the said rarefaction waves. We provide explicit time decay rates and an extension to models, driven by the fractional sub-Laplacians.

On the fuzzy Landau equation

Maja Taskovic
Emory University
May 18, 4:30 PM, SIPA 100

Abstract: The Landau equation is one of the fundamental models in kinetic theory, used to describe collisions in a plasma. The existence of global smooth solutions, when initial data are not necessarily close to equilibrium or vacuum, is a challenging open question. In the spatially homogeneous setting, when the particle density function is independent of the spatial variable, this was recently established in a seminal paper by Guillen and Silvestre. In this talk we discuss a mathematical model that lies between the spatially homogeneous and spatially inhomogeneous Landau equations. The model in question is the fuzzy Landau equation, whose distinguishing feature is the delocalization of collisions. We show that the presence of the spatial delocalization, or fuzziness, not only enhances regularity and prevents singularity formation, but also reveals additional structural properties of the model. In particular, we show that several forms of the Fisher information decay monotonically or remain uniformly bounded in time. The talk is based on a joint work with Gualdani, Guillen, Pavlović and Zamponi.

Extreme internal waves

Sam Walsh

University of Missouri *May 18, 2:30 PM, SIPA 100*

Abstract: Internal waves are traveling waves that propagate along the interface dividing two immiscible fluids. In this talk, we discuss recent progress on rigorously constructing two related species of extreme internal waves: overturning bores and gravity currents. Extreme refers to the fact that there is a stagnation point on the interface, which allows for the boundary to be non-smooth. Hydrodynamic bores are front-type traveling wave solutions to the two-layer free boundary Euler equations in two dimensions. We prove that there exists a family of solutions of this form that starts at trivial solution where the interface is flat and continues until the interface develops a vertical tangent. This type of behavior was first observed over 40 years ago in computations of internal gravity waves and gravity water waves with vorticity via numerical continuation. Despite considerable progress over the past decade in constructing global families of water waves that potentially overturn, a rigorous proof that overturning definitively occurs has been stubbornly elusive. Gravity currents arise when a heavier fluid intrudes into a region of lighter fluid. Typical examples are muddy water flowing into a cleaner body of water and haboobs (dust storms). We give the first rigorous proof of a conjecture of von Kármán on the structure of gravity currents near the rigid boundary. This is joint work with Ming Chen (Pittsburgh) and Miles Wheeler (Bath).

Equilibrium and Confinement of Plasma Modeled by the Relativistic Vlasov-Maxwell System

Zhiyuan Zhang

Northeastern University *May 18, 4:00 PM, SIPA 100*

Abstract: We consider the relativistic Vlasov-Maxwell system (RVM) confined on a general axisymmetric spatial domain with perfect conducting boundary which reflects particles specularly, assuming axisymmetry in the problem. We construct continuous global parametric solution sets for the time-independent RVM.

POSTER SESSION

The poster session is to be held in ASTRO 101 on May 18 at 5:00 PM

Global Existence of Keller Segal Chemotaxis Model with Logistic growth in a half plane.
Pitambar Acharya — *University of Alabama at Birmingham*

A KP type equation for waves over topography
David Andrade — *Universidad del Rosario*

Opinion perception reshapes infectious disease spread
Afolabi Ariwayo — *Florida State University*

"Modeling the Biomechanical Forces and Tensions that Contribute to Cortical Folding: An Inverse Problem"
Julianna Capece — *Florida State University*

Pricing a basket of weather derivatives on temperature and precipitation
Jason Carranza — *Florida International University*

Exotic patterns in Quasi-Ring Networks.
Toma Debnath — *Florida State University*

On the integrable six-wave interaction system and its space-time shifted reduction
Ramesh Gupta — *University of Puerto Rico at Mayaguez*

Soliton Profiles in 1D: Classical Numerical Schemes vs. Neural Network-Based Solvers
Chandler Haight — *Florida International University*

Hollow Vortex Desingularization in the Presence of Gravity
Christian Hirni — *University of Alabama*

Low-regularity invariant measure for the complex-valued mKdV
Zachary Lee — *Florida International University*

Asymptotic stability of fronts for the BBM-Burgers equation
Xinlu Li — *University of Alabama at Birmingham*

Parametric Study of the Bouc-Wen Model for Nonlinear Systems
Victor A. Pineda Ramirez — *University of Puerto Rico at Mayagüez*

The Alabama Opioid Crisis: A Data-Driven Analysis of the Impact of COVID-19 and Policy Responses
Kiersten Ratcliff — *The University of Alabama at Birmingham*

Dynamics Shape the Perception of Network Structure
Callie Reid *Florida State University*

Evaluation of Wind Speed Derivative Contracts
Diana Son *Florida International University*

Derivation of kinetic equations from nonlinear Kac models
Luisa Velasco *University of Texas at Austin*

Stability of Periodic Waves in the Model with Intensity-Dependent Dispersion
Shuoyang Wang *McMaster University*

PARTICIPANTS

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18. Kaylie Green . . . . *Florida State University*
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20. Chandler Haight . . . . *Florida International University*
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23. Christian Hirni . . . . *University of Missouri*
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25. Thomas Kuiper . . . . *Florida State University*
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48. Jonathan Schratter .... *Florida International University*
49. Stanley Snelson .... *Florida Institute of Technology*
50. Diana Son .... *Florida International University*
51. Milena Stanislavova .... *University of Alabama - Birmingham*
52. Atanas Stefanov .... *University of Alabama - Birmingham*
53. Selim Sukhtaiev .... *Auburn University*
54. Maja Taskovic .... *Emory University*
55. Justin Toyota .... *University of Texas at Austin*
56. Dario Valdebenito .... *Ave Maria University*
57. Luisa Velasco .... *University of Texas at Austin*
58. Sam Walsh .... *University of Missouri*
59. Shuoyang Wang .... *McMaster University*
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