Recent Advances in Nonlinear Waves

A conference in honor of Harvey Segur's 75th birthday

Monday, July 31: Location Husky Union Building (HUB 145)

9:00	Welcome, opening comments, and scheduling
9:30	**Walter Strauss**: Steady states of rotating stars and galaxies
10:00	**Edriss Titi**: Some remarks on a generalization of the Bardos-Tartar conjecture for nonlinear dissipative PDEs
10:30	Break
11:00	**Vishal Vasan**: The UTM for equations with nonlocal operators and their application to water waves
11:30	**Diego Arcas**: Recent advances in tsunami forecasting and future directions
12:00	**Frank Talke**: Design and mechanics problems in medical device technology and information storage
12:30	Pizza lunch (Lewis Hall collaborative rooms)
14:30	**Roberto Camassa**: TBA
15:00	**Diane Henderson**: Experiments on water waves
15:30	**David Trubatch**: Numerical detection of wave breaking in the short-pulse equation
16:00	Break
16:30	**Yuji Kodama**: The KP theory and Mach reflection in shallow water
17:00	**Robert Pego**: Nonlinear dynamics of merging and splitting of animal groups via Bernstein function theory
19:00	**Poster session** with desserts (Lewis Hall third floor lounge)

Tuesday, August 1: Location Husky Union Building (HUB 145)

9:30	**Walter Craig**: Vortex filament dynamics
10:00	**Cody Cichowitz**: Opportunities to improve HIV care for pregnant and postpartum women in Tanzania
10:30	Break
11:00	**Chris Curtis**: Surface waves over point vortices
11:30	**Holger Dullin**: Integrable systems related to the Euler fluid flow on the rotating sphere
12:00	**Edgar Knobloch**: Viscous Faraday waves in large domains
12:30	Lunch with access to Lewis Hall collaborative rooms
13:30	**Hike** departures

Wednesday, August 2: Location Husky Union Building (HUB 145)

9:30	**Jean-Marc Vanden Broeck**: Non periodic and asymmetric nonlinear traveling gravity waves
10:00	**Nalini Joshi**: Discrete nonlinear systems and integrability
10:30	Break
11:00	**Rudy Horne**: Parity-time (PT) symmetric systems: An analysis of dimer and trimer models
11:30	**Tom Trogdon**: Oscillatory integrals and the AKNS scattering problem
12:00	**Patrick Weidman**: Reflections of a high-amplitude solitary wave at a vertical wall
12:30	Lunch with access to Lewis Hall collaborative rooms
14:30	**Greg Forest**: If I give you a bucket of mucus, what experiments would you perform to characterize/model it?
15:00	**Congming Li**: Qualitative analysis of nonlinear equations/systems with fractional Laplace
15:30	**Natalie Sheils**: The heat equation on a composite medium with imperfect thermal contact
16:00	Break
16:30	**Lev Ostrovsky**: Nonlinear internal waves in the rotating Earth
17:00	**John Carter**: Comparing experimental measurements and predictions from bi-directional Whitham equations
17:45	Bus departs for conference dinner to Palisade restaurant

Thursday, August 3: Location Mechanical Engineering Building (MEB 246)

9:30	**Peter Olver**: Dispersive quantization of linear and nonlinear waves
10:00	**Constance Schober**: Rogue waves over a non-uniform background
10:30	Break
11:00	**Saverio Spagnolie**: Hydrodynamics of self-propulsion in complex environments
11:30	**Paul Milewski**: The fluid mechanics and mathematics of Faraday pilot waves
12:00	**David Levermore**: Dispersive corrections to the Navier-Stokes system of gas dynamics
12:30	Lunch with access to Lewis Hall collaborative rooms
14:30	**Frederic Dias**: On real world ocean rogue waves
15:00	**Harry Yeh**: Nonlinear edge waves
15:30	**Bernard Deconinck**: Recovering surface elevation from bottom pressure data
16:00	Break
16:30	**Special Event!** Rudy Horne: Hidden Figures: Bringing Math, Physics, History and Race to Hollywood Location: Guggenheim 220

Friday, August 4: Location Mechanical Engineering Building (MEB 246)

9:30	**Mark Ablowitz**: (Many) integrable nonlocal nonlinear equations and solitons
10:00	**Olga Trichtchenko**: Stability of traveling wave solutions to Korteweg-de Vries and related equations
10:30	Break
11:00	**Mark Hoefer**: Hydrodynamic soliton tunneling
11:30	**Katie Oliveras**: Pressure and Luke's variational principle
12:00	**Jon Wilkening**: New families of extreme traveling water waves
12:30	**James Curry**: Image decomposition using non-negative matrix factorization.
13:00	Closing remarks

Special Events

As this conference is a celebration, we have scheduled a number of special events throughout the week. Your guests are welcome for any and all of these events.

Monday. There will be a poster session at 19:00 in the third-floor lounge of Lewis Hall. Bernard Deconinck (one of Harvey's PhD students) will provide a wide range of home-made desserts. Drinks and discussion will also be available.

Tuesday. Hiking is one of Harvey's favorite activities and the Cascade Mountains near Seattle are beautiful in August. We will offer two hiking options Tuesday afternoon. Transportation to/from the trail heads will be provided. Please wear appropriate clothing (boots or sneakers) and bring something to drink. We will depart from the N22 Parking lot just west of Lewis Hall at 13:30.

- **Easy hike**: Twin Falls is a 45-minute drive from Seattle. The hike is 2.6 miles long round trip and includes 500 feet of elevation gain. In addition to views of "Twin Falls" the hike provides many wonderful river and waterfall views and passes through forest that almost resembles rain forest.

- **Moderate hike**: Snow Lake is a 60-minute drive from Seattle. The hike is 7.2 miles long round trip and includes 1,800 feet of elevation gain. This trail provides splendorous alpine lake views. It is deservedly one of the most popular hikes near Seattle.

- **Collaborative Rooms**: For those not interested in hiking, the collaborative rooms in Lewis Hall will be open and available.

Wednesday. We will hold the conference dinner at Palisade Restaurant on Wednesday evening. It is one of Seattle's finer seafood restaurants and has arguably the best view in the city. In addition to excellent food, wine and views, there will be opportunities to toast Harvey and share Harvey stories. A chartered school bus will take us to the dinner at 17:45 and will bring us back to campus after dinner. The dinner costs $50 per person, please pay John Carter in cash before Wednesday evening.

Thursday. At 16:30 Rudy Horne of Morehouse College (PhD, University of Colorado Boulder, 2001) will give a talk about his experiences serving as the mathematics consultant for the hit movie Hidden Figures. The talk is open to the public and will be in Guggenheim 220.