2025 Research Symposium on Environmental and Applied Fluid Dynamics
Tuesday, May 27th, 2025
The George Washington University, Lehman Auditorium (B1220), Science and Engineering Hall
The George Washington University, Washington, DC, 20052

8:45 am – 9:15 am	***CONTINENTAL BREAKFAST AND WELCOME** – Professor Mike W. Plesniak (Chair, Mechanical & Aerospace Engineering)*
9:15 am – 10:00 am	Keynote Lecture: Prof. Deep Ray (University of Maryland) "Learning Enhancements to Flow Solvers: A Synergistic Approach"

TECHNICAL SESSION I – Session Chair: M. Yaper (The George Washington University)

10:05 am – 10:25 am	Swarup Kumar Subudhi (University of Maryland): Capillary-Force-Defying Exit and Entry of Nanoparticle-Aggregates from and to a Magnetic Drop" (Prof. Siddhartha Das)
10:25 am – 10:45 am	Nero Tyagi (The George Washington University): "Design and Analysis of Cross-Flow Filtration Mechanisms to Collect Oceanic Organic Particles" (Prof. Matthew Rau)
10:45 am – 11:05 am	Haoqian Wang (The George Washington University): "Trajectories of Interacting Viscous Drops in a Shear-Thinning Viscous and Viscoelastic Media" (Prof. Kausik Sarkar)
11:05 am – 11:15 am	***COFFEE BREAK***

TECHNICAL SESSION II – Session Chair: S. Bera (The George Washington University)

11:15 am – 11:35 am	Daniel Hunter (The George Washington University): "Ultrafast Imaging of High Void Fraction Bubbly Flows" (Prof. Philippe Bardet)
11:35 am – 11:55 am	Shiyong Tan (Johns Hopkins University): Bubble Coalescence in 3D Turbulence" (Prof. Rui Ni)
11:55 am – 12:15 pm	Ji Zhou (Johns Hopkins University): "Hydrodynamically Beneficial School Configurations in Carangiform Swimmers: Insights from a Flow-Physics Informed Model" (Prof. Rajat Mittal)
12:15 pm – 12:35 pm	Zhihua Zheng (University of Maryland): "Boundary Layer Turbulence at Upper Ocean Submesoscale Fronts" (Prof. Jacob Wenegrat)
12:35 pm – 12:40 pm	Prof. Azar Panah: Fluids and Art @ GWU overview
12:40 pm – 1:45 pm	***LUNCH BREAK***

TECHNICAL SESSION III – Session Chair: T. Boulafentis (The George Washington University)

1:45 pm – 2:05 pm	Manuel Ayala (Johns Hopkins University): "Surface Wave-Aerodynamic Roughness Length Model for Air-Sea Interactions" (Profs. Charles Meneveau & Dennice Gayme)
2:05 pm – 2:25 pm	Sam DiPasqua (University of Maryland): "Observation Data Enriched Enhanced Wind-Driven Ocean Wave Models" (Prof. Kayo Ide)
2:25 pm – 2:45 pm	Md Badrul Hasan (University of Maryland Baltimore County): "Invariance-Embedded Machine Learning Sub-Grid-Scale Stress Models for Meso-Scale Hurricane Boundary Layer Simulations" (Profs. Meilin Yu & Tim Oates)
2:45 pm – 3:05 pm	Samarpan Chakraborty (University of Maryland): "Freak Ocean Waves: A Data-Driven Analysis" (Prof. Bala Balachandran)
3:05 pm – 3:15 pm	***AFTERNOON BREAK***

TECHNICAL SESSION IV – Session Chair: E. Florou (The George Washington University)

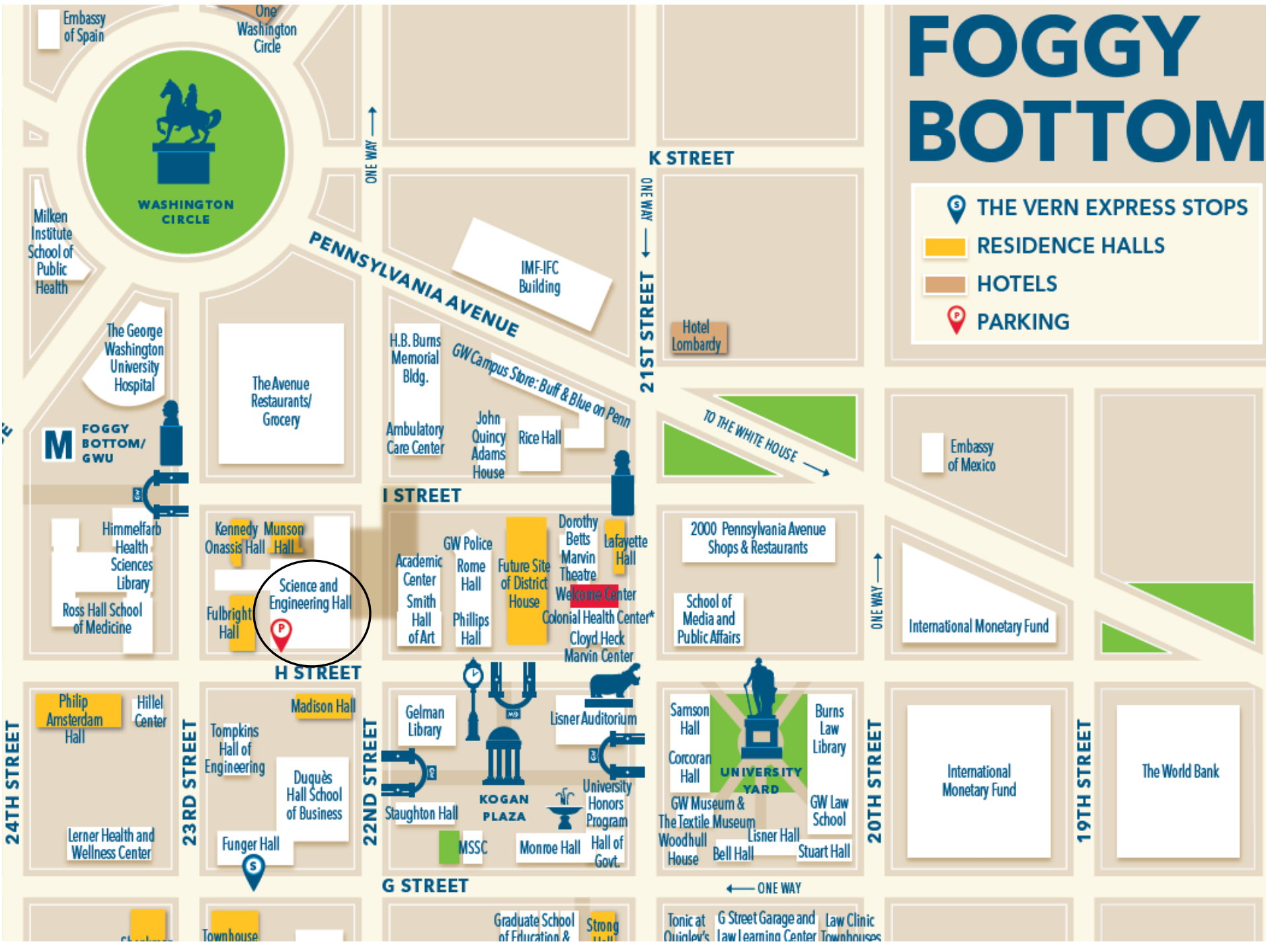|	
3:15 pm – 3:35 pm	Tianrui Xiang (Johns Hopkins University): "The Origin of Vorticity in Viscous Incompressible Flows" (Prof. Tamer Zaki)
3:35 pm – 3:55 pm	Connor Klauss (University of Maryland): "An Exploration into Phononic Subsurfaces for the use of High-Speed Boundary Layer Transition Control" (Prof. Christoph Brehm)
3:55 pm – 4:15 pm	Deepan Sharma (Johns Hopkins University): "Three-Dimensional Velocity Measurements around a Roughness Element in the Inner Part of a Rough-Wall Turbulent Boundary Layer" (Prof. Joe Katz)
4:15 pm – 4:35 pm	N. Beratlis (The George Washington University): "The Interaction of Soft Fouling with Turbulent Boundary Layers" (Prof. Elias Balaras)
4:35 pm – 6:00 pm	***CLOSING RECEPTION***

(Faculty Advisors indicated in parentheses)

FOGGY BOTTOM

Embassy of Spain

One Washington Circle

WASHINGTON CIRCLE

ONE WAY

PENNSYLVANIA AVENUE

K STREET

ONE WAY

21ST STREET

IMF-IFC Building

Hotel Lombardy

TO THE WHITE HOUSE

Milken Institute School of Public Health

The George Washington University Hospital

M FOGGY BOTTOM/ GWU

The Avenue Restaurants/ Grocery

H.B. Burns Memorial Bldg.

GW Campus Store: Buff & Blue on Penn

Ambulatory Care Center

John Quincy Adams House

Rice Hall

I STREET

Embassy of Mexico

Himmelfarb Health Sciences Library

Ross Hall School of Medicine

Kennedy Onassis Hall

Munson Hall

Science and Engineering Hall

Ⓟ

Fulbright Hall

Academic Center Smith Hall of Art

GW Police Rome Hall

Phillips Hall

Future Site of District House

Dorothy Betts Marvin Theatre

Welcome Center

Colonial Health Center*

Lafayette Hall

2000 Pennsylvania Avenue Shops & Restaurants

School of Media and Public Affairs

ONE WAY

International Monetary Fund

H STREET

Cloyd Heck Marvin Center

Philip Amsterdam Hall

Hillel Center

Madison Hall

Gelman Library

Lisner Auditorium

Samson Hall

Corcoran Hall

UNIVERSITY YARD

Burns Law Library

GW Law School

24TH STREET

23RD STREET

Tompkins Hall of Engineering

Duquès Hall School of Business

22ND STREET

KOGAN PLAZA

University Honors Program

GW Museum & The Textile Museum Woodhull House

Lisner Hall

Bell Hall

Stuart Hall

20TH STREET

International Monetary Fund

19TH STREET

The World Bank

Lerner Health and Wellness Center

Funger Hall

○S

Staughton Hall

MSSC

Monroe Hall

Hall of Govt.

G STREET

← ONE WAY

Townhouse

Graduate School of Education &

Strong Hall

Tonic at Quigley's

G Street Garage and Law Learning Center

Law Clinic Townhouses

Campus Parking & Directions

Foggy Bottom Directions & Parking Airport &

Public Transportation

The George Washington University is easily accessible by taxi or subway (Metro) from Reagan National Airport and Amtrak (Union Station).

From Dulles International Airport, you may take the Washington Flyer bus service to many downtown hotels. People arriving at Baltimore-Washington International Thurgood Marshall Airport may take the Super Shuttle or Amtrak directly into Washington, D.C.

Metro (Subway)

The Foggy Bottom-GWU Metro Station is located on campus. It offers access to Metro's Blue, Orange and Silver lines. For more information on metro, visit Washington Metropolitan Area Transit Authority (www.wmata.com).

Driving Directions

From North:
- Interstate 95 South to Interstate 495 (Capital Beltway) toward Silver Spring/Northern Virginia
- Take Exit 33, heading south on Connecticut Avenue for about 9 miles
- Turn right onto Florida Avenue (just past the Washington Hilton) and then turn left immediately onto 21st Street
- Turn right on I Street
- The visitor entrance to the Academic Center Parking Garage is on the left between 21st and 22nd Streets

From Northwest:
- Interstate 270 to Interstate 495 (Capital Beltway) toward Silver Spring
- Take Exit 33, heading south on Connecticut Avenue for about 9 miles
- Follow directions as shown above in "From North"

From West:

- Interstate 66 and Route 50 both connect with the Theodore Roosevelt Bridge
- Cross the bridge and exit left at E Street, then again at Virginia Avenue
- Bear left, following signs for 23rd Street
- Turn right on 23rd Street and continue a few blocks to campus
- Turn right on I Street
- The visitor entrance to the Academic Center Parking Garage is on the right between 21st and 22nd Streets

From South:
- Interstate 95 to Interstate 395, Arlington Memorial Bridge Exit
- Cross the bridge and bear left at the Lincoln Memorial
- Turn left onto 23rd Street, NW, and follow directions as shown above in "From West"

Visitor Parking

Public transportation is encouraged, but if you choose to drive to GW, visitor parking spaces are available in the Science and Engineering Hall (800 22nd St, NW) and University Student Center (800 21st St, NW) Garages. Both garages are accessed off of H-Street.

The rates are $11 for 1 Hour; $17 for 2 Hours; $12 after 5PM; $24 all day (subject to change). On-campus street parking is available, but it is limited and time limits are strictly enforced.

For more information, visit Transportation & Parking Services (https://business-services.gwu.edu/visitor-parking).