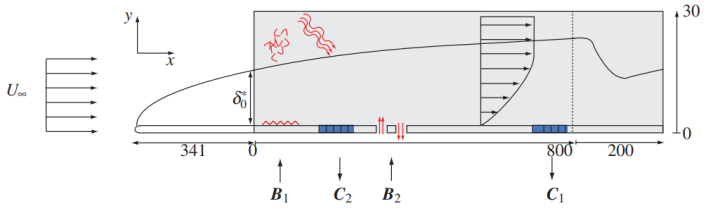
Opportunity description

Potential projects for undergraduate research will be based on mutual interest. Some topics include:

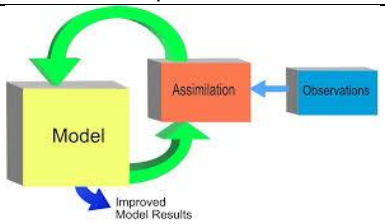
1. Reduced-order modeling and analysis of flow over hydrophobic surfaces
2. Fixed flux double-diffusive convection analyzed by single-mode equations
3. Optimal sensor and actuator placement in complex Ginzburg-Landau systems
4. Data-assimilation in shallow water equations using semi-analytical approach
5. Quantum algorithms for scientific computing and its applications in hydrodynamic stability

Flow over hydrophobic surface

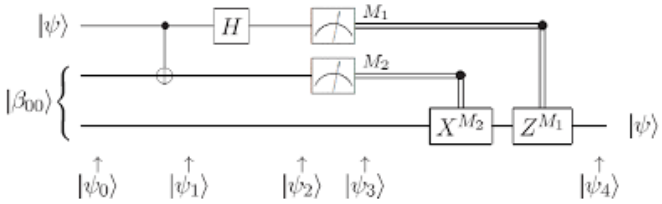
Double-diffusive convection in Latte



Optimal actuator and sensor placement in spatially developing flows



Data Assimilation



Quantum algorithm

The student's responsibilities include problem formulation, programming, and data analysis. The student may earn credit for independent study or Mechanical Engineering Honors Research course. Application of summer research fellowship will also be encouraged and supported.

Student Qualification

Students are required to have a strong background in mathematics, physics, and computer programming (Python or MATLAB). Prior research experience, courses in fluid dynamics, and plan to pursue a Graduate program are desired but not required.

How to apply

Interested students can apply this research opportunity by sending an email to Dr. Chang Liu via chang_liu@uconn.edu with a copy of CV and transcript. A paragraph describing why you are interested in this opportunity, what you plan to do, and the preferred research duration will be appreciated.