

ITS @ The Graduate Center

Initiative for the Theoretical Sciences

Fluid phases of matter: from electron liquids to active matter

Our understanding of universal phenomena in interacting many-body systems ranging from subatomic to astronomical scales relies largely on the hydrodynamic framework. In the past few years, hydrodynamics has become a central theme of quantum condensed matter, soft matter (in the form of non-equilibrium active fluids), high-energy physics, and quantum information. The proposed CUNY workshop continues in this tradition and aims to bring together a group of creative experts, young and old, to synthesize these insights from disparate fields and push the frontier of hydrodynamics in quantum and classical systems. The topics to be covered fall in three broad categories: (1) Higher-gradient hydrodynamic effects in chiral matter, both classical and quantum, such as the Hall viscosity and odd elasticity, as well as nonequilibrium field-theoretic approaches to deriving hydrodynamics; (2) Recent experimental developments in realizing the hydrodynamic regime of electron fluids; and (3) The hydrodynamics of active matter such as chiral active fluids, flocking etc.

The workshop will be held during 3 days in **The Science Center (Room 4102)** at CUNY The Graduate Center in Manhattan (365 Fifth Ave).

Wednesday 11 December 2019

8:15 AM	Breakfast
9:00 AM	Alexander Abanov Stony Brook University
9:30 AM	Barry Bradlyn University of Illinois Urbana-Champaign
10:00 AM	<i>Break</i>
11:00 AM	Mathew Lapa University of Chicago
11:30 AM	Alex Bogatskiy University of Chicago
12:00 PM	<i>Lunch</i>
2:00 PM	Paul Wiegmann University of Chicago
2:30 PM	Andrey Gromov Brown University

3:00 PM *Break*
4:00 PM **Romain Vasseur** UMass Amherst
4:30 PM **Vir Bulchandani** UC Berkeley

Thursday 12 December 2019

8:15 AM Breakfast
9:00 AM **Andy Lucas** UC Boulder
9:30 AM **Aaron Hui** Cornell University
10:00 AM *Break*
11:00 AM **David Huse** Princeton University
11:30 AM **Brian Skinner** MIT/OSU
12:00 PM *Lunch*
2:00 PM **Paolo Glorioso** University of Chicago
2:30 PM **Kartiek Agarwal** McGill University
3:00 PM *Break*
4:00 PM **Jed Pixley** Rutgers University
4:30 PM **Lea Santos** Yeshiva University
5:00 PM **Matteo Ippoliti** Stanford University

Friday 13 December 2019

8:15 AM Breakfast
9:00 AM **Vincenzo Vitelli** University of Chicago
9:30 AM **Justin C. Burton** Emory University
10:00 AM *Break*
11:00 AM **Suraj Shankar** Harvard University
11:30 AM **Yizhi You** Princeton University
12:00 PM *Lunch*

Sponsored by the Initiative for the Theoretical Sciences, and by the CUNY doctoral programs in Physics and Biology.