KitP Conference: Turbulence in the Universe  
(Feb 20-23, 2024)  
Coordinators: Axel Brandenburg, Gregory Howes, Sasha Tchekhovskoy and Siyao Xu

**Tuesday, Feb 20, 2024**

**ISM, Chair: Axel Brandenburg (Nordita)**

- 8:50am Lisa Stewart (KITP)  
  Welcome
- 9:00am Susan Clark (Stanford)  
  Magnetic fields in the multi-phase interstellar medium
- 9:30am Christoph Federrath (Mt. Stromlo Obs.)  
  On statistical signatures of ISM turbulence in dust polarization maps
- 10:00am Alexei Kritsuk (UCSD)  
  The link between turbulence and star formation
- 11:00am Mordecai-Mark Mac Low (AMNH)  
  Supernova Driven Galactic Dynamos
- 11:30am Ethan Vishniac (Johns Hopkins)  
  Discussion led by Ethan Vishniac

**Morning Break**

**ISM, Chair: Siyao Xu (Florida)**

- 2:00pm Eve Ostriker (Princeton)  
  ISM turbulence, then and now
- 2:30pm Lachlan Lancaster (Columbia)  
  The Theory and Simulation of Wind Blown Bubbles
- 3:00pm Dmitri Pogosyan (U. Alberta)  
  Differential Measures for Magnetic Field Strength in Turbulent
- 3:30pm Philipp Moesta (U Amsterdam)  
  Magnetoturbulence in supernovae and neutron-star mergers

**Afternoon Break**

**Wednesday, Feb 21, 2024**

**Galaxies, CGm and CRs, Chair: Drummond Fielding (Flatiron)**

- 9:00am Irina Zhuravleva (U. Chicago)  
  Turbulence in the Intracluster Medium: Observations, Challenges, and Future Perspectives
- 9:30am Yuanyuan Su (Kentucky)  
  Multiphase gas observed in various environments and what is the role of turbulence
- 10:00am Rajsekhar Mohapatra (Princeton)  
  Multiphase condensation in galactic and cluster halos: the role played by turbulence
- 11:00am Mateusz Ruszkowski (Michigan)  
  Discussion led by Mateusz Ruszkowski: Open problems in cosmic ray feedback
- 12:00pm Philipp Kempski (Princeton)  
  Do cosmic rays care about the intermittency of interstellar turbulence?

**Lunch Break**

**Galaxies, CGm and CRs, Chair: Sasha Tchekhovskoy (Northwestern)**

- 2:00pm Claude-Andre Faucher-Giguere (Northwestern)  
  The Turbulent Lives of Young Galaxies
- 2:30pm Philipp Grete (U Hamburg)  
  MHD turbulence from idealized boxes to the ICM
- 3:00pm Philipp Moesta (U Amsterdam)  
  Magnetoturbulence in supernovae and neutron-star mergers

**Afternoon Break**

**Thursday, Feb 22, 2024**

**Clusters, MHD, Heliosphere, Chair: Luca Comisso (Columbia)**

- 9:00am Elisabete M. de Gouveia Dal Pino (U de Sao Paulo)  
  Turbulence-Driven Magnetic Reconnection and Cosmic Ray Accelerator
- 9:30am Martin Lemouine (IAP-UPMC)  
  Particle acceleration and transport in magnetized turbulence: a role for structures
- 10:00am Hui Li (LANL)  
  Temporal Properties of Compressible MHD Turbulence and Implications for Helio and Astro Plasmas
- 11:00am Alex Lazarian (UW-Madison)  
  Physics of Turbulent Acceleration and its Application to Galaxy Clusters
- 11:30am Megan Donahue (MSU) and Hsiao Wen Chen (U. Chicago)  
  Discussion led by Megan Donahue (MSU) and Hsiao-Wen Chen (U. Chicago): Observable implications of turbulence and pressure support on the CGM and ICM

**Lunch Break**

**Clusters, MHD, Heliosphere, Chair: Greg Howes (Iowa)**

- 2:00pm Trevor Bowen (UCB)  
  Mediation of collisionless turbulent dissipation through cyclotron resonance

**SHUTTLE TO BWSCI**
2:30pm Mihailo Martinovic (Arizona)  
Ion-Driven Instabilities in the Inner Heliosphere; An Overview[Slides][Video]
3:00pm Anna Tenerani (Texas)  
Switchbacks in the solar wind: turbulence or coherent waves?[Slides][Video]
3:30pm  
Afternoon Break
4:00pm Kris Klein (Arizona)  
The Nature of Turbulence in Space Plasmas[Slides][Video]
4:30pm Greg Howes (Iowa)  
Discussion led by Greg Howes: Kinetic Mechanisms for the Dissipation of Turbulence and their Dependence on the Turbulence Parameters[Video]
5:30pm  
RECEPTION
6:00pm  
SPECIAL EVENTS DINNER
8:00pm  
SHUTTLE TO BWSCI

Friday, Feb 23, 2024

Black Holes, Jets and Disks, Chair: Yuan Li (North Texas)

9:00am Omer Blaes (UCSB)  
Convection, MRI and magnetic elevation in high luminosity accretion disks around supermassive black holes[Slides][Video]
9:30am Christopher Reynolds (Maryland)  
Variability, dynamos and large-scale field growth in simplified models of black hole accretion disks[Video]
10:00am Goni Halevi (Northwestern)  
Begin at the beginning: how black holes are born, launch jets and tidally disrupt stars[Video]
10:30am  
Morning Break
11:00am Jim Stone (IAS)  
Turbulence in radiation-dominated disks[Slides][Video]
11:30am James Beattie (Princeton / CITA)  
A Large Compressible MHD Turbulence Simulation (with no net magnetic flux)[Video]
12:00pm Yue Hu (UW Madison)  
Magnetic Fields in Galaxy Clusters: Insights from Synchrotron and X-Ray Intensity Gradients[Slides][Video]
12:30pm  
Lunch Break

Collisionless Plasmas, Chair: Philipp Kempski (Princeton)

2:00pm Deepika Bollimpalli (Northwestern)  
Disc wars: The thin disc strikes back[Video]
2:30pm Luca Comisso (Columbia)  
Particle acceleration in magnetized plasma turbulence[Video]
3:00pm Vladimir Zhdankin (UW-Madison)  
Turbulence and instabilities in collisionless accretion flows[Video]
3:30pm  
Afternoon Break
4:00pm Mehrnoosh Tahani (Stanford)  
MHD turbulence: What the 3D magnetic field observations are revealing[Slides][Video]
4:30pm Eliot Quataert (Princeton)  
Discussion led by Eliot Quataert[Video]
5:30pm  
CONFERENCE END SHUTTLE TO BWSCI *Also available to SB Airport and SB Airbus, Goleta location.(See Registration Desk BEFORE FRIDAY to sign up.)