Monday, 8 April 2013

8:15am  Breakfast (on-site)
8:50am  Welcoming Remarks

Reviews of plasmas.
Session Chair: Stewart Prager (PPPL, Princeton)

9:00am  “An overview of astrophysical plasmas: From microphysics to global dynamics”
Eliot Quataert (UC Berkeley)

9:50am  “Solar-wind thermodynamics and turbulence - an overview”
Stuart Bale (UC Berkeley)

10:40am  Tea, Coffee, & Posters

11:05am  “Introduction to simulations and bad-curvature-driven instabilities in magnetic confinement fusion”
Greg Hammett (PPPL, Princeton)

Advancing gyrokinetic theory and simulation.
Session Chair: Bill Dorland (UMD)

11:55am  “Multiscale gyrokinetics: Fluctuations, transport, and energy flows”
Ian Abel (Oxford)

12:40pm  Lunch (off-site)

2:10pm  “Multiscale, multiphysics modeling of turbulent transport and heating in collisionless plasmas”
Michael Barnes (MIT)

2:55pm  “Kinetic theory of plasma confinement in stellarators”
Per Helander (IPP Greifswald)

3:40pm  Tea, Coffee, & Posters

4:05pm  “Magnetic-field geometry and magnetized plasma turbulence”
Gabe Plunk (IPP Greifswald), pp. Per Helander

4:35pm  “VIRIATO: A Fourier-Hermite spectral code for strongly magnetized, fluid-kinetic plasma dynamics”
Nuno Loureiro (IST Lisbon)

5:20pm  Session discussion
5:35pm  Welcome Reception (on-site)
Tuesday, 9 April 2013
8:15am  Breakfast (on-site)
9:00am  Welcoming Remarks
Modeling rotating and stratified turbulence.
Session Chairs: David Mikkelesen (PPPL), Eve Ostriker (Princeton)
9:05am  “Critical balance as a universal scaling conjecture”
         Alex Schekochihin (Oxford)
9:50am  “Critical balance in tokamak turbulence”
         Felix Parra (MIT)
10:35am Tea, Coffee, & Posters
11:00am “Magnetic helicity transport and dynamo effect in laboratory
       and astrophysical plasmas”
         Amitava Bhattacharjee (Princeton, PPPL)
11:45am “Spinning an unmagnetized plasma for magnetorotational
       instability and dynamo experiments”
         Cami Collins (UW-Madison)
12:30pm Lunch (on-site)
1:30pm  “Momentum transport in flowing plasmas”
         Fatima Ebrahimi (Princeton, PPPL)
2:15pm  “Statistical description of magnetized coronae above turbulent
       accretion disks”
         Dmitri Uzdensky (CU-Boulder)
3:00pm  Tea, Coffee, & Posters
3:20pm  “Application of proper orthogonal decomposition to analysis of
       turbulent dynamics”
         David Hatch (UT Austin)
4:05pm  Session discussion
4:30pm  “Making large-scale magnetic fields”
         Department of Astrophysical Sciences Spring Colloquium
         Steve Cowley (UK Atomic Energy Authority, Imperial)

Wednesday, 10 April 2013
8:15am  Breakfast (on-site)
9:00am  Welcoming Remarks
Diagnosing nonlocality, anisotropy, & mesoscale structure in turbulence.
Session Chair: Jim Stone (Princeton)
9:05am  “Energy partitions in dissipative mode space for instability-
         driven plasma turbulence”
         Paul Terry (UW-Madison)
9:50am  “Sheared turbulence: numerical methods and application to
         astrophysical disks”
         Geoffroy Lesur (IPAG Grenoble)
10:35am Tea, Coffee, & Posters
10:55am “Characterizing the mesoscale regime in magnetized accretion
       disks”
         Jacob Simon (CU-Boulder)
11:40am “Zonal flow generation: Recent theoretical insights and
       analytical tools”
         John Krommes (PPPL, Princeton)
12:25pm Lunch (off-site)
1:55pm  “Anisotropy of solar-wind turbulence”
         Chris Chen (UC Berkeley)
2:40pm  “Energy spectra in MHD turbulence and in the solar wind”
         Stanislav Boldyrev (UW-Madison)
3:25pm  Session discussion
3:40pm  Tea, Coffee, & Posters
Investigating turbulent heating, energetic particles, and plasma
microinstabilities. Session Chair: Anatoly Spitkovsky (Princeton)
4:05pm  “Turbulent transport and heating of minority ions in hot,
         magnetized plasmas”
         Michael Barnes (MIT)
4:35pm  “Extended heating in the solar wind: Understanding resonance
         broadening in MHD turbulence with quasilinear theory and test
         particles”
         Ian Parrish (CITA)
Thursday, 11 April 2013

8:15am  Breakfast (on-site)
9:00am  Welcoming Remarks
9:05am  “The heating and acceleration of the solar wind”
        Eliot Quataert (UC Berkeley)
9:50am  “Firehose instability in heliospheric and astrophysical plasmas:
        Modeling, simulations, and observations”
        Lorenzo Matteini (Imperial)
10:35am Tea, Coffee, & Posters
11:00am “The saturation of firehose and mirror instabilities in turbulent
        astrophysical plasmas”
        Matthew Kunz (Princeton)
11:45am “Linear and nonlinear aspects of mode conversion at the
        Alfvén resonance”
        Jay Johnson (PPPL)
12:30pm Lunch (on-site)
1:30pm  “Gyrokinetic simulations of solar-wind turbulence and magnetic
        reconnection”
        Jason Tenbarge (Iowa)
2:15pm  “Particle-in-cell simulations of particle acceleration in relativistic
        magnetized astrophysical flows”
        Lorenzo Sironi (Harvard-Smithsonian CfA)
3:00pm  Tea, Coffee, & Posters
3:25pm  “The impact of pressure anisotropy on magnetic reconnection
        and particle acceleration”
        James Drake (UMD)
4:10pm  Session discussion
4:30pm  “Exploring the mysteries of plasma turbulence”
        Department of Physics Spring Colloquium
        Speaker: Frank Jenko (IPP Garching)

Friday, 12 April 2013

8:15am  Breakfast (on-site)
9:00am  Welcoming Remarks
9:05am  “Revisiting the stability of quasi-Keplerian flow at large
        Reynolds numbers in the laboratory”
        Hantao Ji (Princeton, PPPL)
9:40am  “A nonlinear dynamics perspective on the MRI dynamo
        transition and subcritical turbulence in sheared plasmas”
        Francois Rincon (IRAP Toulouse)
10:25am Tea, Coffee, & Posters
10:50am “Turbulence, transport, and flow in laboratory plasmas”
        Troy Carter (UCLA)
11:35pm “Suppressing subcritical turbulence in fusion plasmas”
        Edmund Highcock (Oxford)
12:20pm Session discussion
12:35pm End of workshop

Poster Presentations

“Boundary-induced amplification & nonlinear instability of interchange modes”
Jupiter Bagaiapo (UMD)

“Unified algorithms for fluid and kinetic simulations of plasmas”
Ammar Hakim (PPPL)

“Why do we see an extended density fluctuation spectrum in the solar wind and
the interstellar medium?”
Anjor Kanekar (UMD)

“Zonal flow as pattern formation: Merging jets and the ultimate jet lengthscale”
Jeff Parker (Princeton, PPPL)

“Correlations and the outer scale of turbulence in fast solar wind”
Robert Wicks (NASA GSFC)
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