CENTER FOR
SPACE SCIENCE
NYUAD

Future directions in solar, stellar and planetary physics

Day 1: January 21, 2020

Introduction 9:00
Welcome: NYUAD Administrator
Speaker: K.R. Sreenivasan (NYU, NYUAD) -- Purpose of this conference + CSS

Session 1: Sun and stars 9:30
Session chair:

Speaker: Joergen Christensen-Dalsgaard (Aarhus University) -- Asteroseismology
Speaker: Randa Asad (American University of Sharjah) -- Observations of stellar clusters

Break 15 min

Speaker: Federico Spada (MPS) -- Models of solar-like stars with an improved description of surface convection
Speaker: Cilia Damiani (MPS) -- Rossby waves in polytropes

Lunch: 12:25 – 13:30

Session 2: Sun and stars (continued) 13:30
Session chair:

Speaker: Laurent Gizon (MPS and NYUAD) -- Helioseismology
Speaker: Shravan Hanasoge (TIFR Mumbai and NYUAD) -- Solar convection

Break 15 min

Speaker: Hannah Schunker (MPS) -- Evolution of solar active region tilts
Speaker: Ioannis Kourakis (Khalifa University of Science and Technology) – Waves in Maxwellian Plasmas

Coffee: 16:25 – 17:00

Session 3: Public Lecture 17:00

Introduction and session chair:

Jeroen Tromp (Princeton University) -- Finding oil and understanding Earth and Mars

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Day 2: January 22, 2020

Session 4: Planets and exoplanets 9:30
Session chair:

Speaker: Ian Dobbs-Dixon (NYUAD) – Modeling exoplanets
Speaker: Olivier Pauluis (NYU and NYUAD) – Dynamics of the Earth's atmosphere

Break 15 min

Speaker: Laura Kreidberg (Harvard) -- Exoplanetary atmospheres
Speaker: Doug Lin (UCSC) -- Formation of planets and architectures of stellar systems

Lunch: 12:25 – 13:30

Session 5: Planets and exoplanets (continued) 13:30
Session chair:

Speaker: Magali Deleuil (Marseille) -- Transiting planetary systems
Speaker: Stephane Udry (Geneva Observatory) -- Future facilities for exoplanet detection / characterization

Break 15 min

Speaker: Nathan Mayne (Exeter) -- Exoplanetary Atmospheres in 3D: implications from radiation-chemistry-hydrodynamics simulations
Speaker: John Wettlaufer (Yale University and NORDITA) -- Icy cosmogony

Coffee break: 16:25 – 17:00

Session 6: Short talks by local researchers
Session chair:

Speaker: K.R. Sreenivasan (NYU and NYUAD) -- High Rayleigh number convection (~20 min)
Speakers: Post-docs (3 min each)

Day 3: January 23, 2020

Session 7: Computational astrophysics 9:30
Session chair:

Speaker: Maria Bergemann (Max Planck Institute for Astronomy, Heidelberg): Solar and stellar abundances in 3D Non-LTE
Speaker: Joerg Schumacher (TU Ilmenau) -- Low Prandtl number convection

Break 15 min

Speaker: Hideyuki Hotta (Chiba University) -- Solar convection and dynamo action
Speaker: Axel Brandenburg (NORDITA) -- Astrophysical MHD turbulence

Lunch: 12:25 – 13:30

Session 8: Computational astrophysics (continued) 13:30
Session chair:

Speaker: Aake Nordlund (Niels Bohr Institute) -- A numerical simulation framework for exa-scale computing
Speaker: Mausumi Dikpati (HAO Boulder) -- Modeling quasi-annual variability in solar activity and implications in space weather

Break 15 min

Speaker: Ravi Samtaney (KAUST) -- Vortex dynamics on 2D surfaces with discrete exterior calculus

Speaker: Jim Stone (IAS Princeton) -- The Athena++ AMR framework: implementation and some results

Coffee break: 16:25 – 16:45

Closing Speaker: John Leibacher (NSO Tucson and IAS Orsay)