IAU SYMPOSIUM 285

New Horizons in Time Domain Astronomy

19–23 September 2011
St. Catherine's College, Oxford, UK

Variability pervades the cosmos. Interpreting its various forms offers deep and detailed understanding of the physics involved.

Variability can be

- Regular (photometric, radial-velocity, positional)
- Explosive (not repeated, or rare and unpredictable)
- Very long-term ("secular")
- Irregular (of almost any frequency)

IAU Symposium 285 will:

* Discuss the implications of the physics as revealed by forms of variability
* Examine commonalities, as well as differences, in that science, crossing traditional frequency and time-scale boundaries in the process
* Describe the status of relevant data and analysis tools
* Hold special-focus discussions and data-analysis workshops
* Explore ways to harness technology and collaboration so as to meet newly-identified challenges in time-domain astronomical research
* Stimulate research into all aspects of time-variable phenomena.

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Mid-week public lecture: Professor Sir Martin Rees, "What Time Is It?"

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Main Scientific Programme

Monday September 19

Keynote presentation

- Brian Warner (U. Capetown, South Africa), The power of the unexpected

Morning, Plenary 1: Can our data meet the challenges?

- Brian Schmidt (ANU/MSSSO, Australia): New wide-field optical surveys
- Rob Fender (U. Southampton, UK): The scientific potential of LOFAR
- Hans Kjeldsen (Aarhus U., Denmark): CoRoT, MOST, and Kepler
- Josh Grindlay (CfA, USA): Mining inherited data
- Phil Charles (SAAO, South Africa): Networking small and medium-sized telescopes
- Francesca Primas (ESO, Germany): Spectroscopic surveys
- Neil Gehrels (NASA GSFC, USA): Swift and Fermi

Afternoon: Workshops

Tuesday September 20
Morning, Plenary 2: Explosive or irreversible changes

- Shri Kulkarni (Caltech, USA): Explosive events in the cosmos
- Jim Cordes (Cornell U., USA): The dynamic radio sky
- Steven Smartt (QUB, UK): Supernovae
- Lars Bildsten (KITP/UCSB, USA): Interpreting explosive events

Afternoon: Workshops

Wednesday September 21
Morning, Plenary 3: Things that tick: New themes for established practices

- Michael Kramer (MPIfRA, Germany): Pulsars
- Don Kurtz (U. Central Lancashire): Asteroseismology
- Roger Griffin (Cambridge U., UK): Radial velocities: new science and new trends
- Suzanne Aigrain (Oxford U., UK): Extrasolar planets

- Alex Schwarzenberg-Czerny (CAMK, Warsaw, Poland): Time-series analyses

Afternoon: Free time

Thursday September 22
Morning, Plenary 4: Irregular and aperiodic changes

- Erin Bonning (Yale U., USA): AGNs, blazars, QSOs
- Rachel Osten (STScI, USA): Young stars
- Franz Kerschbaum (U. Vienna, Austria): Variable red giants
- Stephen Potter (SAAO, South Africa): Polarimetric variability
- Mark Walker (Manly Astrophysics, Australia): Interstellar scintillation
- Isabelle Baraffe (U. Geneva, Switzerland): Stellar evolution in 3D

Afternoon: Workshops

Friday September 23
Morning, Plenary 5: Preparing the future: Harnessing new data, technology, theory and analysis to address new science requirements

- George Djorgovski (Caltech, USA): The science and strategies of synoptic sky surveys
- Ben Stappers (JBCA/U. Manchester, UK): SKA
- Laurent Eyer (U. Geneva, Switzerland): From Hipparcos to Gaia
- Nicholas White (NASA GSFC, USA): Next generation X-ray astronomy
- Adam Riess (JHU & STScI, USA): (WFIRST) Cosmology from variable candles
- Workshops roundup (12 session leaders)

Afternoon, Plenary 6:

- Joshua Bloom (UCB, USA): What is feasible now, soon, and maybe
- Rosemary Wyse (JHU, USA): Conference summary
- General plenary discussion
