

## **“TESSting Stellar Astrophysics” The TASC3/KASC10 Workshop**

### **Conference Programme (updated 30 June 2017)**

Talks will be in the main lecture theatre (S02) on the top floor of the Physics Poynting Building (R13 on campus maps). The entrance to the building is on the south side, opposite the Nuffield Building (R9), and will have signs outside. The conference hub will be in the Physics Museum room (S04), right next to the main theatre. Posters will be in the Bridge Study Room (between R13 and R15), one floor down, while tea/coffee and lunch will be served both in the Bridge Study Room and in the Physics Coffee lounge (the latter on the same floor as the main theatre).

<http://www.birmingham.ac.uk/Documents/university/edgbaston-campus-map.pdf>

### **Sunday**

18.00 – 20.00 Ice Breaker, Bramall Music Building, University of Birmingham main campus [building R12 on campus maps]

### **Monday**

08.30 – 09.00 Tea, coffee and poster viewing

09.00 – 09.15 Formal opening by Professor Sir David Eastwood, Vice Chancellor of the University; followed by Introduction and Welcome

#### ***Setting the scene for TESS and TASC***

**Chair: Bill Chaplin**

09.15 – 09.50 “Unlocking the Secrets of nearby Exoplanets with the Transiting Exoplanet Survey Satellite” George Ricker, MIT [invited review]

09.50 – 10.20 “TASC target selection and data products”, Hans Kjeldsen, Aarhus [invited]

10.20 – 10.25 “Overview of the TESS Guest Investigator programme”, Tom Barclay, NASA Goddard

10.25 – 10.30 “K2 Guest Observer Cycle 6 Proposals”, Christina Hedges, K2 GO Office, NASA Ames

10.30 – 11.00 Tea, coffee and poster viewing

11.00 – 11.30 “TESS Data Preparation”, Mikkel Lund & Rasmus Handberg, Birmingham & Aarhus [invited]

#### ***Theme reviews***

**Chair: Tim Bedding**

11.30 – 12.00 “TESSting Theories of the Structure & Evolution of Planetary Systems”, Courtney Dressing, Caltech [invited review]

12.00 – 12.30 “Current challenges for stellar physics and stellar evolution models”, Maurizio Salaris, Liverpool John Moores [invited review]

12.30 – 13.30 Lunch (buffet)

13.30 – 14.00 “Challenges for understanding stellar evolution in binary/multiple/interacting systems”, Silvia Toonen, Amsterdam [invited review]

14.00 – 14.30 “Stellar Populations & Galactic Archaeology – Open Questions”, Gerry Gilmore, IoA Cambridge [invited review]

14.30 – 15.00 1-minute poster presentations

15.00 – 15.30 Tea, coffee and poster viewing

#### ***Theme 1: Challenges for Understanding the Structure and Evolution of Exoplanet Systems***

**Chair: Dave Latham**

15.30 – 16.00 “Asteroseismology-Exoplanet Synergies in the TESS Era: What will we learn?” Daniel Huber, Hawaii [invited]

16.00 – 16.30 “Getting the most out of light curves of exoplanet host stars”, Suzanne Aigrain, Oxford [invited]

16.30 – 16.50 “The Construction of the TESS Input Catalog and Exoplanet Search Target List”, Josh Pepper, Lehigh University

16.50 – 17.10 “Using Asteroseismology to Resolve the Mystery of Planet Inflation”, Samuel Grunblatt, Hawaii

17.10 – 17.30 “Massive or not massive that is the question”, Dennis Stello, UNSW

19.00 – *Astronomy Mixer, IKON Art Gallery, Birmingham city centre*

## **Tuesday**

**Chair: Sarbani Basu**

08.30 – 09.00 Tea, coffee and poster viewing

09.00 – 09.40 1-minute poster presentations

### ***Theme 2: Challenges for Studies of Stellar Evolution & Stellar Interiors Physics***

09.40 – 10.10 “Modelling dynamical processes in stellar interiors in the light of asteroseismic measurements”, Patrick Eggenberger, Geneva [invited]

10.10 – 10.30 “Using quadrupolar mixed modes to probe the internal rotation of red giants”, Sebastien Deheuvels, IRAP Toulouse

10.30 – 11.00 Tea, coffee and poster viewing

11.00 – 11.20 “The era of large-scale measurements of red giant core rotation”, Charlotte Gehan, LESIA Paris Observatory

11.20 – 11.40 “Core and Surface Rotation Rates of Evolved Intermediate Mass Stars”, Jamie Tayar, Ohio State University

11.40 – 12.10 “The impact of magnetic fields on stellar evolution”, Evelyne Alecian, Grenoble [invited]

12.10 – 12.30 “Asteroseismology with a twist: An efficient damping mechanism for oscillations in red giants with magnetised cores”, Shyeh Tjing (Cleo) Loi, DAMTP Cambridge

12.30 – 13.30 Lunch (buffet)

### ***Theme 2: Challenges for Studies of Stellar Evolution & Stellar Interiors Physics (continued...)***

**Chair: Marie-Jo Goupil**

13.30 – 13.50 “Angular momentum transport on the lower main sequence as revealed by  $\gamma$  Doradus stars”, Rhita-Maria Ouazzani, LESIA Paris Observatory

13.50 – 14.10 “Asteroseismic measure of the latitudinal differential rotation”, Othman Benomar, NYU Abu Dhabi

14.10 – 14.30 “Tracking Magnetism and Angular Momentum Loss with Rotating Stellar Populations”, Jennifer van Saders, Carnegie Observatories

14.30 – 14.50 “Mixed modes in red giants: stellar information versus alternative facts”, Benoit Mosser, LESIA Paris Observatory

14.50 – 15.10 “Asteroseismology of 16,000 Kepler red giants: global oscillation parameters, masses and radii”, Jie Yu, University of Sydney

15.10 – 15.30 “Exploring coupling between pressure and gravity modes in red-giant stars”, Saskia Hekker, Max Planck Institute

15.30 – 16.00 Tea, coffee and poster viewing

***Theme 2: Challenges for Studies of Stellar Evolution & Stellar Interiors Physics (continued...)***

**Chair: Steve Kawaler**

16.00 – 16.30 “Rumblings in the Stellar Graveyard: White Dwarf Pulsations with K2 and TESS”, JJ Hermes, University North Carolina [invited]

16.30 – 16.50 “Red edge of DAVs and outbursts in cool DAVs”, Jing Luan, UC Berkeley

16.50 – 17.10 “The impact of pre-white dwarf evolution on the asteroseismological inferences of ZZ Ceti stars”, Francisco Cesar De Geronimo, Universidad Nacional de La Plata

17.10 – 17.30 “A Universal approach to the analytical modelling of period spacings in the presence or absence of buoyancy-related glitches”, Margarida Cunha, IA Porto

17.30 – 17.50 “Kepler red-clump stars in the field and in open clusters: constraints on core mixing”, Diego Bossini, University of Birmingham

*19.00: Public Lecture (ticket only; see conference website), Large Lecture Theatre [S02], top floor Poynting Physics, University of Birmingham main campus [building R13 on campus maps]*

**Wednesday**

***Theme 2: Challenges for Studies of Stellar Evolution & Stellar Interiors Physics (continued...)***

**Chair: Margarida Cunha**

08.30 – 09.00 Tea, coffee and poster viewing

09.00 – 09.20 “Seismic scaling relations 2.0”, Thomas Kallinger, University of Vienna

09.20 – 09.40 “Surface effects in evolved solar-like oscillators”, Warrick Ball, University of Birmingham

09.40 – 10.00 “Seismic estimate of the envelope helium abundance for stars in the Kepler seismic LEGACY sample”, Kuldeep Verma, SAC Aarhus

10.00 – 10.20 “Seismic signatures of magnetic activity in Kepler data: results from a Bayesian peak-bagging analysis of 87 solar-type stars”, Angela Santos, IA Porto

10.20 – 10.50 Tea, coffee and poster viewing

***Theme 3: Challenges for Understanding Stellar Evolution in Binary/Multiple/Interacting Systems***

**Chair: Conny Aerts**

10.50 – 11.20 “The potential of TESS for advancing studies of binary systems”, Andrej Prsa, Villanova [invited]

11.20 – 11.40 “Compact objects and hierarchical triples: Kepler delta Scuti stars in binary and multiple systems”, Simon Murphy, University of Sydney

11.40 – 12.00 “Modelling Kepler Red Giants in Eclipsing Binaries: Constraining the Mixing length parameter”, Tanda Li, University of Sydney

***Theme 4: Challenges for Stellar Populations and Galactic Archaeology Studies***

**Chair: Andrea Miglio**

12.00 – 12.30 “Stellar population studies with solar like-oscillators: what we have learnt so far, and the promise of TESS”, Luca Casagrande, ANU [invited]

*12.30 – Excursion to Warwick Castle (with packed lunch)*

## Thursday

### **Theme 4: Challenges for Stellar Populations and Galactic Archaeology Studies (continued...)**

**Chair: Andrea Miglio**

08.30 – 09.00 Tea, coffee and poster viewing

09.00 – 09.30 “Cepheid and RR Lyrae studies with TESS: what could 27 days give us?” Emese Plachy, Konkoly [invited]

09.30 – 09.50 “The First APOKASC Catalog of Kepler Dwarf and Subgiant Stars”, Aldo Serenelli, IEEC-CSIC

09.50 – 10.10 “Non-radial modes in first-overtone RR Lyrae stars – the complete analysis of the OGLE data for the Galactic bulge”, Henryka Netzel, Nicolaus Copernicus, Warsaw

10.10 – 10.30 “Age dissection of the Milky Way disk using asteroseismology”, Victor Silva Aguirre, SAC Aarhus

10.30 – 11.00 Tea, coffee and poster viewing

### **Parallel Working Group Sessions**

11.00 – 12.30 Parallel meetings of TASC Working Groups

11.00 – 11.50 Parallel meetings #1 (details TBC)

11.50 – 12.30 Parallel meetings #2 (details TBC)

12.30 – 13.30 Lunch

### **Special TASC Session**

**Chair: Hans Kjeldsen**

13.30 – 14.00 WG1 & WG2: TESS Exoplanet Hosts & Solar-Type Stars

14.00 – 14.30 WG7: Red Giant Oscillations

14.30 – 15.00 WG3: Oscillating Stars in Clusters

15.00 – 15.30 WG4: Main-Sequence AF Classical Pulsators

15.30 – 16.00 Tea, coffee and poster viewing

16.00 – 16.30 WG5: Main-Sequence OB Classical Pulsators

16.30 – 17.00 WG6: RR Lyrae & Cepheids

17.00 – 17.30 WG8: Compact Pulsators

19.00, for sit-down at 20.00: Conference Dinner, Edgbaston Cricket Ground

## Friday

### **Future Opportunities and Challenges**

**Chair: Jørgen Christensen-Dalsgaard**

08.30 – 09.30 Tea, coffee and poster viewing

09.30 – 10.00 “The Gaia astrometric mission”, Joris de Ridder, KU Leuven [invited]

10.00 – 10.30 “Asteroseismology with PLATO”, Kevin Belkacem, LESIA Paris Observatory [invited]

10.30 – 11.00 Tea, coffee and poster viewing

11.00 – 11.45 Open Plenary Discussion: Challenges for TASC [led by Hans Kjeldsen]

11.45 – 12.15 Summary talk, Yvonne Elsworth, Birmingham [invited]

12.15 – 12.30 Closing