The Newsletter - Volume 13, Issues 2 & 3
4 January 2017

Covers events between February 1 to 31 July 2016.

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Departing staff
• David Williams left the Solar Group to take up a new position as Instrument Operations Scientist for Solar Orbiter at ESAC in Spain;
• The Astrophysics Group wishes all the best to Stefano Pasetto who left our group in March and moved to the Carnegie Observatories as a Postdoctoral Research Associate;
• Rosalind Medland retired after 27 years of service;
• Howard Huckle retired after 46 years of service;
• Richard Hill;
• Chris Hoyle;
• Ashley Cutts;
• Paul Janicki.

New staff
• Francesco Zuccarello from KU Leuven joined the Solar Group as an honorary research fellow;
• Sean Gradone - Quality Assurance Co-Ordinator;
• Patrick Curry - Mechanical Design Engineer;
• Anthony White - Workshop Instrument Maker & Fitter;
• Philippa Elwell - Senior Administrator for
Postgraduate Teaching & Learning (p/t);
• Richard Hill - Euclid - VIS Assembly AIT;
• Kirk Ruane - Laboratory Technician;
• Jason Hunt - GAIA Data Flow (6 months);
• Samantha Babister - Executive Assistant to Head of Department;
• Melissa Sedmak - Senior Lecturer in Technology Management;
• Ashraf Al Bahlawan - Space Project Design Engineer;
• Gian Paolo Candini - Electronic Engineer - Euclid VIS Systems;
• Sarah Ritchie - Senior Finance Administrator.

Promotions
• Congratulations to Silvia Zan on her promotion to Professor;
• Congratulations to Tom Kitching on his promotion to Reader.

Visitors

Astrophysics Group:
• Hosted two MAPS Dean’s Summer Studentship students, Ashley Stock (University of Saskatchewan, Canada) and Kaye Li (Chinese University of Hong Kong), supervised by Kinwah Wu;
• Hosted a Nuffield funded student, Scott Stephens, supervised by Kinwah Wu and Ellis Owen;
• Hosted two summer research visiting students, William Hughes (Cambridge) and Michael Hughes (Bristol);
• Hosted an internship student Antoine Plouviez supervised by Jason McEwen and Tom Kitching;
• Is hosting Samantha Oates (IAA-CSIC, Granada, Spain) and Denija Cronjevic (Texas Tech University, USA).

Solar Group:
• Erika Palmeiro visited from Helsinki;
• Rendani Nndanganeni visited from SANSA;
• Michael Kennedy visited from Queen’s University Belfast and gave a seminar;
• Hirohisa Hara from NAOJ visited from 10-11 February and gave a seminar;
• Duncan Mackay visited from St. Andrews University and gave a seminar;
• David Brooks visited from NRL and gave a seminar.

Prizes and Awards
• Jennifer Chan won 2nd prize in MSSL poster competition on 19 February;
• Ignacio Ferreras received a Distinguished Visitor award at the Australian Astronomical Observatory, Sydney, and a Royal Society Travel grant to visit ICRAR at the University of Western Australia, Perth, in February and March;
• Alex James was awarded a studentship by the Solar Physics Division of the American Astronomical Society to attend the SPD meeting in June.

Appointments
Solar Group:
• Magnus Woods was appointed an IRIS Science Planner;
• Louise Harra:
  o Served on a lectureship selection committee at the University of Birmingham;
  o Served on the UCL senior promotions committee.
• Lidia van Driel-Gesztelyi:
  o Served on the Scientific Advisory Board of the ReSoLVE Centre of Excellence, Oulu, Finland;
  o Was Guest Editor to the Editorial Committee meeting of the journal Annual Reviews of Astronomy and Astrophysics (2 April, Tucson, AZ).
• Lucie Green was appointed to the UCL Public Policy Board.

Space Plasma Group
• Andrew Coates has been appointed as External Assessor for Open University MSc course in Space Science.

Telescope/Satellite Time Awards
• Louise Harra was awarded the Hinode operations grant (April 2016-March 2019);
• Daisuke Kawata and Jason Hunt have been awarded 8.64 M core hours on PRACE Tier-1 High Performance computer time (PI: B.K. Gibson, Hull);
• Dasiuke Kawata has been awarded 6 hours of VLT/MUSE time (PI:Sánchez-Blázquez).
• David Long:
  o Was awarded observing time on the New Solar Telescope at the Big Bear Solar Observatory;
  o Was awarded observing time on the Dunn Solar Telescope as part of a
Mission Status and Developments

**Athena** - Graziella Branduardi-Raymont attended the X-IFU Science Advisory Team and Consortium meetings at SRON, Utrecht, on 23-24 May.

**ExoMars** - Development continuing.

**Gaia** - The MSSL Gaia team attended the Gaia Data Processing and Analysis Consortium (DPAC) Co-ordination Unit (CU) 6 Spectroscopic Processing Plenary Meeting in Potsdam on 8-10 June. They presented their validation of their Radial Velocity Spectrometer (RVS) on-ground data processing software running in the Global pipeline at the Data Processing Centre CNES (DPCC, Toulouse). The radial velocities from these data will be publicly released in Gaia’s second data release. The MSSL Gaia team’s Gaia Radial Velocity Spectrometer (RVS) on-ground data processing software is now running in the Global pipeline at the Data Processing Centre CNES (DPCC, Toulouse). The team have been conducting a detailed validation of the DPCC outputs to ensure the pipeline is running as expected. This software will calibrate the RVS spectra in order to be able to derive radial velocities for the brightest ~2 million stars (V < 11) observed by Gaia between July 2014 and September 2015. These radial velocities will be publicly released in 2017 in Gaia’s second data release.

**SMILE** - The first Consortium meeting for the Soft X-ray Imager (SXI) on SMILE took place on 2 – 3 February in Leicester. Dave Walton, Paul Kuin and Graziella attended. Graziella attended a workshop organised by the Birkeland Centre for Space Science (BCSS) in Geilo (Norway) on 1-3 March and gave a talk on SMILE. BCSS are part of the Consortium of institutes building hardware for the SXI.

Regular progress meetings/telecons for each SMILE instrument have continued to be held with ESA on a two-monthly basis, as well as discussions in view of optimising the payload within the financial constraints.

Graziella attended a Science Study Team meeting on 20 May, a meeting of the Soft X-ray Imager CCD Working Group at e2v on 8 June and a review of the funding situation at the UKSA, Swindon, on 28 July (following submission on 10 May of a funding proposal up to launch, and following further updates). Graziella was co-organiser of and attended the ISSI Forum on ‘Link between solar wind, magnetosphere and ionosphere’ and the SMILE Consortium meeting in Beijing, 6 – 8 July. She presented a poster on SMILE at the Centre for Planetary Sciences summer meeting at UCL on 21 June and at NAM (27 June – 1 July).

Publications – Refereed

**Published**


Bruderer, C., ..., Fererras, I. et al., Light versus dark in strong-lens galaxies: dark matter haloes that are rounder than their stars, 2016, MNRAS, 456, 870


Coates, A.J., Connecting the dots in magnetic reconnection, 352, 1176-1177, DOI: 10.1126/science.aaf7269, 03 Jun 2016. Likks to: Summary, reprint, full text


Ferreras, I. et al., Is the stellar initial mass function universal?, 2016, A&G, 57, 3.22
Mylläri, A.A.,...., Yershov, V.N. et al., Fractality of Isotherms of the Cosmic Microwave Background Based on Data from the Planck, 2016, Astrophysics, 59, 31


Zubair, K., …, McEwen, J.D., Gauss-Legendre Sampling on the Rotation Group, 2016, ISPL, 23, 207

Publications – Non-Refereed

Articles for The Conversation:

- Coates, A.J., A stolen exoplanet that will kill us all? Here’s what we actually know about ‘Planet Nine’, 3 June 2016

PhDs/MPhil Awarded

- Leonardo Regoli (Thesis title ‘Titan’s interaction with the Saturnian magnetosphere’);
- Matthew Hills (awarded March 2016)
- Hadi Sanei (awarded August 2016)
- Aaron Stinson (awarded July 2016)
- Arrow Lee (Thesis title ‘A design and evaluation of a miniaturised position-sensitive energetic particle detector for small satellites’).

Invited Talks and Conferences

AGU Chapman Conference on Currents in Geospace and Beyond, Croatia, 22-27 May:

- Royal Society Discussion Meeting on Cometary science after Rosetta, The Centre for Planetary Sciences at UCL/Birkbeck, London, 14-15 June:
  - Coates, A.J., Ion Pickup from Giotto to Rosetta (poster) 14/15 June;
  - Coates, A.J., Ion pickup from Giotto to Rosetta… and in the future 16/17 June;
- Price, O.D., G.H. Jones, K. Battans, Dust Tail Analysis from a new application of the Finson-Probst Technique (poster) 14/15 June;
- Price, O.D. G.H. Jones, K. Battans, New applications of cometary dust tail modelling 16/17 June;

Centre for Planetary Sciences 6th Summer Meeting, UCL-Birkbeck, 21 June:

- Wellbrock, A., G.H. Jones, A.J. Coates, K. S. Birkett, O. Price, Comet studies at UCL-MSSL
- A.J.Coates, C. Leff, A.D. Griffiths, R.B. Stubbins and the PanCam team, The PanCam instrument for the 2020 ExoMars rover (invited);

Graziella Branduardi-Raymont

- Gave a solicited talk “X-studies of solar system objects: now and the nextdecade” at the “XMM-Newton: The Next Decade” workshop at ESAC, 9-11 May;
- Helped to organize the “High-resolution X-ray spectroscopic software and tools” workshop at ESAC on 12-13 May.

Xiaohao Cai

- Gave a talk on “Wavelet-based Segmentation
on the Sphere” at the Eighth International conference “Inverse Problems: Modeling and Simulation”, Fethiye, Turkey on 23-28 May;
• Gave a seminar on “Wavelet-based Segmentation on the Sphere and the Application of MCMC Method in Radio Interferometry” at Department of Applied Mathematics and Theoretical Physics (DAMTP), Cambridge, 3 June.

Ravi Desai:
• Negative Ions in space environments: What they are telling us. Invited Seminar, Los Alamos National Laboratory, 24 July.

Desai, R.T., A.J. Coates, D.O. Kataria, A. Wellbrook:

• Negative Pickup Ions at Icy Moons: Rhea and Europa, Poster presented at Enceladus and the Icy Moons of Saturn, Boulder, Colorado USA, 26-29 June.

Ignacio Ferreras
• Gave a seminar at the Sydney Institute for Astronomy, “The initial mass function as a tracer of galaxy formation”, Sydney, Australia, February 12;
• Gave a talk at the AAO Astrofest, “GAMA: Stellar populations as a probe of the accretion history of massive galaxies”, Sydney, Australia, February 25;
• Gave a seminar at ICRAR/UWA, “The initial mass function as a tracer of galaxy formation”, Perth, Australia, March 31.

Lucie Green:
• Gave a review talk at the AGU Chapman Conference on “Currents in Geospace and Beyond”;
• Gave a talk at the ISSI meeting “The scientific foundation of Space Weather”;
• Gave a talk at the MSSLI/IRDR “Cascading Disasters and Space Weather” workshop at the Kavli meeting (May).

Louise Harra:
• Gave a talk at the Kavli meeting (May);

Alex James:
• Gave seminars at NWRA in Boulder and Stanford University, California.

Daisuke Kawata:
• Gave a seminar on “Impacts of a Flaring Disk and Radial Mixing on Galactic Thick and Thin Disks”, at Institute de Astronomia, Universidad Nacional Autonoma de Mexico on 9 June;
• Gave a seminar on “Impacts of Flaring Disk and Radial Mixing on Galactic Disk”, at Galaxy Evolution Seminars, Oxford on 22 June;
• Organised “Industrial Revolution in Galactic Astronomy” workshop at Sexten as a part of SOC and was a co-facilitator of Galactic Parameters team;
• Gave a seminar on “Structure and Metallicity Distributions of Chemically Decomposed Thick and Thin Disk Populations of the Milky Way”, at Astrophysics and Space Research Group, University of Birmingham on 23 March;
• Gave a seminar on “Impacts of a Flaring Disk and Radial Mixing on Galactic Disk” at Keele University on 20 April.

Jason McEwen
• Gave a talk on “EB separation with spin directional wavelets”, at COSMO21, Chania, Greece, 22-27 May;
• Gave a talk on “Radio Interferometry in the Big Data Era of The Square Kilometre Array”, at UCL MAPS Research Festival – Big Date, 20 April.

David Long:
• Gave invited seminars at the High Altitude Observatory and NOAA Space Weather Prediction Centre, both in Boulder (June).

David Long and Alex James:
• Attended the Solar Physics Division meeting in Boulder Colorado. Alex gave a talk and David presented two posters. (31 May - 3 June).

David Long, Sarah Matthews, Louise Harra and Sally Dacie:
• Attended the National Astronomy Meeting in Nottingham, with all giving invited/contributed talks (27 June - 1 July)

David Long, Magnus Woods, Gherardo Valori,
Lucie Green, Louise Harra and Sarah Matthews:
- Gave lectures & talks at the SOLARNET summer school and workshop hosted at MSSL.

Massimiliano de Pasquale
- Gave a talk on “Challenging the forward shock model with the 80 Ms follow up of the X-ray afterglow of GRB 120427A” at EWASS (symposium 11), 5 July.

David Pérez-Suárez:
- Gave a lecture at the Space Climate 6 school in Finland.

George Seabroke
- Gave a colloquium on “The Gaia Mission” at Armagh Observatory on 8 March.

Myrto Symeonidis
- Gave a seminar on AGN at Manchester;
- Gave a talk on “AGN are cooler than you think: the intrinsic far-IR emission from QSOs” at EWASS (symposium 5), and organized the symposium as a chair.

Gherardo Valori:
- Gave a talk at the European Week of Astronomy and Space Science conference (Athens, July 4-8).


Magnus Woods:
- Attended the IRIS-6 meeting in Stockholm. (20 - 23 June).

Chris Wallis:
- Gave a talk on “Sparse image reconstruction on the sphere: Analysis vs Synthesis” at COSMO21, Chania, Greece, 22-27 May.

Kinwah Wu:
- Gave an invited talk on “Outflow and Heating in Galactic Environment in the Young Universe” at the ISSI Meeting “New Approach to Active Processes in the Central Region of Galaxies, Beijing, China, 6-8 June;
- Gave a seminar on “The propagation of fronts in the cosmological reionisation era” at Tsinghua University, China;
- Gave a seminar on “Integrating Frontier Research into Undergraduate Teaching” to the Nanjing University Teaching Committee and academic staff at Nanjing University;
- Gave a seminar on “Teaching Presentation Clinics” to research students and postdoctoral researchers at School of Astronomy and Space Science, Nanjing University;
- Gave an invited talk on “Dynamics of fast spinning neutron stars around a massive black hole” at the workshop “The physical processes of compact objects at various scales”, Guangzhou, China, 28 March - 1 April.

Silvia Zane

Francesco Zuccarello:
- Gave a review at the Meeting of the Italian Solar Heliospheric community: the physical mechanisms that trigger coronal mass ejections (Rome, May 30, 31 and June 1).

Outreach

Chris Brockley-Blatt
- Gave a short presentation on MSSL’s involvement with the Solar Orbiter project as part of the Second Annual Lecture Evening presented by the blog site “Science Rocks!” at Sutton High School, Sutton, Surrey. Science Rocks is a blog and short video service produced by teenage sisters Megan and Elizabeth O’Shea. Their website can be found here: http://scienterocks.co.uk/ . Other Presenters include Dr. Simon Foster from Imperial and Anne-Marie Imafidon from the STEM organisation Stemettes (29 Feb).

Graziella Branduardi-Raymont
- Gave a talk on careers at Collyer’s College, Horsham, on 24 June and at Sackville School, Hildenborough, Kent on 28 June.
Andrew Coates:
- ExoMars PanCam exhibit at outreach event ‘Exploring Space’ at Natural History Museum, 13 May (A.Coates, R.Stabbins, C.Leff);
- Talk for Bournemouth Natural Science Society, Rosetta and Philae: unlocking the secrets of comets, 4 June;
- ExoMars PanCam exhibit at University of Surrey Space Robotics Event (public event with 300 people), 30 June;
- Talk for ~30 UCL-MSSL GCSE/AS work experience week students at MSSL on ExoMars and PanCam, 12 July.

Ravi Desai, Oliver Price, Roger Stabbins:
- Supervision of Group Projects for UCL-MSSL Work Experience Week, 11-15 July.

Ignacio Ferreras

Lucie Green:
- Gave talks at the Royal Institution, Steyning Festival, Hay Festival, Tedx London, Harrogate International Festival, Southern Area Group of Astronomical Societies, Forest Green Village Hall and Spacelink’s summer schools’ event;
- Hosted a schools’ event with Charles Bolden at the Science Museum;
- Gave a talk at a poetry evening held at MSSL celebrating the poetry book “Laboratorio”, developed at MSSL and led by Simon Barracough;
- Gave schools talk at Science Live and at the UCL Academy.

Louise Harra:
- Had 5 GCSE/A level students at the lab for a day’s work experience.

Alex James, Sally Dacie and Magnus Woods:
- Supervised projects during the MSSL Work Experience week.

G.H Jones, A. Wellbrock, O. Price, R. Desai, S. Taylor:
- A Comet Revealed: Rosetta & Philae at Comet 67P, Exhibit at The Royal Society Summer Science Exhibition, 4-10 July.

Roger Stabbins
- Introduction to Planetary Science, Talk for ~30 UCL-MSSL GCSE/AS work experience week students, MSSL12 July.

Ellis Owen
- Gave a talk on “Cosmology and the Epoch of Reionisation” at the Croydon Astronomical Society, 20 May;
- Gave a talk on Ultra High-Energy Cosmic rays at the Vectis Astronomical Society, 22 July.

George Seabroke
- Staffed Gaia stand at the Big Bang Fair, NEC, Birmingham, on 19 March;
- Gave a talk at a nursery for 3-4 year olds;
- Acted as host for the UCL’s Slade School of Art visit to MSSL on 24 June for their one-day sculpture park project.

Kinwah Wu
- Delivered a demo university physics lecture “Gravitational waves and black hole merging: making cosmological tsunamis by colliding space-time singularities” to a group of secondary school students, teachers and (concerned) parents in Hong Kong on 2 April;
- Gave a talk on “Black holes, general relativity and space-time” (plus an overview of space based scientific research at UCL-MSSL) to a group of legal and other professionals, UCL/UoL alumni and friends at the “Woo Kwan Lee & Lo” law firm on 5 April.

Press Releases
Space Plasma Group
- UCL, ESA and NASA press releases about Venus Electric Wind, 20 June (used in Mail online, iflscience, i).

Media Broadcasts and Features
Andrew Coates:
- Quoted on ExoMars and robotic space exploration, BBC News, 17 May;
- Interview on BBC radio Surrey Breakfast on Mars crater called Woking and ExoMars rover, 26 May;
- Interview for BBC World Service, Newshour, on inflatable space structures and ExoMars. 26 May;
- Interview on Irish radio Newstalk (Moncrieff programme) on Planet Nine and exoplanets, mentioned ExoMars, 7 June;
- Interview on BBC Surrey about Tim Peake landing and UK space science and technology (mentioned ExoMars), 18 June;
• Info for UCL, ESA and NASA press releases about Venus Electric Wind, 20 June; Venus Electric Wind, 20 June;
• Info for NPR about ExoMars and Brexit, 29 June;
• Interviews for BBC World Service (Newsday), BBC Radio Surrey/Sussex and BBC World TV (Global) on Juno orbit insertion, 5 July;
• Appeared on Voice of America Press Conference USA – Science Edition, on Venus electric wind, 8 July;
• Interview for All about Space on interstellar travel, 23 June, appeared July.

Lucie Green:
• Was a panel member on BBC Radio 4’s the Infinite Monkey Cage;
• Took part in the BBC World Service Weekend programme;
• Discussed the history and current status of solar physics on Channel 4’s Sunday Brunch, Radio 3’s Free Thinking and Absolute Radio;
• Launched her book: 15 million degrees in the Science Museum (30 March).

Other news

• Lucie Green, George Seabroke and Martin de la Nougerede were involved in organising the visit to MSSL by the Slade School of Art, who exhibited their work in the grounds;
• The Solar Group hosted the 4th SOLARNET Summer School and a SOLARNET Workshop on Solar Eruptive Events;
• Lidia van Driel-Gesztelyi was featured in the Women at UCL exhibition.

Next Issue
The next issue of The Newsletter (Volume 13, Issue 4) will be published in February 2017. This will cover activities from 1 August to 30 October 2016.