

Monica's Monthly Message

DPS News November 2014

Dear all,

A slim volume this month as not much happened, just a few trivial bits and pieces about comets, the Moon, keynote lectures at education conferences, presentations at the CBI, differences on foreign REF management, just the usual run-of-the-mill stuff.

We had a few staff changes: John Bolton (pictured below) retired but, as always happens, you never manage to leave the OU, and so he is staying on as an Honorary Associate which is a great pleasure as he was, and is, a highly valued member of DPS.



I will be working with Sally and Ulrich in the New Year to develop a case for a new member of staff to take over John's teaching responsibilities.

Keeping on the topic of former members of staff brings me to Colin Pillinger. As noted later in the newsletter, the Royal Society has announced a travel fund in his memory to enable early career researchers to apply for travel funds. Colin was also awarded an Honorary Fellowship by Swansea University in recognition of his achievements.

I seem to have spent most of the last month having coffee, cake and conversation with different groups of staff. All of the suggestions that were made at the time have come to pass but some will not happen, as I mentioned in a separate email, we cannot do anything about the windows in the social area but I will keep pursuing improvements.

Where has Monica been?

I gave a talk at the Kensington and Chelsea Science Festival and I talked to about 60 Year five students at Olney Middle School which was great fun.

Lunar mission one – this is covered elsewhere in the newsletter. I am on the Board of Trustees and overseeing the governance of this project.



Please pledge!

I attended a reception at 10 Downing Street, hosted by the Prime Minister, to celebrate British science.



There is enough about Rosetta elsewhere without me taking up space here but I can say that it was an enabling experience being in Darmstadt when Philae landed and I am so proud of the instrument team for their achievements. I would also like to congratulate the team back here in the UK for the amazing job they did. As far as the UK is concerned, Rosetta is The Open University's project and that is great news for us (even if it is irritating for our colleagues at other institutions).

I was asked to take part in Don't Panic, part of independent cinema's Science Fiction series. I talked about Rosetta and Philae which seemed to go down well.

The Coram Foundation was founded 275 years ago and as part of the anniversary celebrations I was invited to take part in a panel discussion. The Foundation started out as the Foundling Hospital and the initial funds were granted because Thomas Coram got 21 influential women to petition the Queen to petition the King. The Foundation now carries on work with disadvantaged children. The panel of inspiring women was made up of Nicola Horlick (Superwoman), Eleanor Mills (Editorial Director, Sunday Times) and Hallie Rubenhold (author/historian) and me as a "scientist". The audience was from all over the UK, mainly all supporters of the Coram Foundation the idea was to transmit the message that if you have an inspiring message to deliver, then you can make things happen.

I now have a regular column on The Conversation <http://theconversation.com/columns/monica-grady-125306> which is syndicated to the US – form an orderly queue for my autograph.

People

Congratulations to **Matt Soman** on the successful defence of his PhD thesis.

Colin Pillinger was posthumously awarded an Honorary Fellowship by Swansea University in recognition of his exceptional scientific achievements and of his contributions to the promotion of science.

Royal Society announces an award in commemoration of **Professor Colin Pillinger** CBE FRS
<https://royalsociety.org/news/2014/royal-society-announces-an-award-in-commemoration-of-professor-colin-pillinger/>

For those of you wondering on what **Colin Snodgrass** will be working, he has a five-year fellowship to perform observational work on comets, across all dynamical and activity classes, to try to determine whether the differences in their observed activity level is due to intrinsic variation between the comets (tracing composition in different regions of the proto-solar disc) or due to evolution in their current orbits (different environments, primarily distance from the Sun). To do this he will be looking at three cases in particular: Rosetta's comet 67P as a typical Jupiter family comet, the low activity 'main belt comets', and very high activity comets that get close to the Sun.

An article **Rebecca Thomas** wrote about volatiles on Mercury is featured in the latest issue of The Planetary Report, the quarterly magazine of The Planetary Society.

We welcome **Alan Cayless** who started work on 1st November as a 0.5 staff tutor for two years, looking after associate lecturers formerly managed by **Sally Jordan**. Alan is an S207 AL and has worked for the Open University in a variety of part-time roles for very many years. Many people will remember him from residential school. Alan is based at the Edinburgh Office and is part of the Physical Sciences Student Support Sub-Team and the Physics Discipline.

I am very pleased to welcome **Georgina Vizard** to the Department. Georgina is Project Secretary for the Consolidated Grant and for SEPNet. She comes to us from Estates where she worked in the Events and Catering and Portering and Transport teams so we now have a direct hotline for when we want new ingredients in OU quiches.

Jimena Gorfinkiel was elected a member of the Commission on Atomic, Molecular, and Optical Physics (C15) at the International Union of Pure and Applied Physics (IUPAP) General Assembly held in Singapore in November this year. She had been nominated by the Institute of Physics. The commissions promote the objectives of the IUPAP within their areas of expertise and provide advice to the Union on the activities and needs of the subfields of physics they represent. The post is held for 3 years.

Following from developing Rosetta and Beagle 2 technologies into an instrument to monitor air quality in submarines, BAE has finally agreed that we can tell people about it! The press release is now up and can be linked to here:

<http://www3.open.ac.uk/media/fullstory.aspx?id=28309>

Business Secretary Vince Cable said: "Rosetta is a great example of how our investment in big space programmes delivers a wide range of benefits for the UK. Not only do we get to explore our solar system and push the boundaries of science, but we reap the considerable economic and social benefits that new space technologies provide. It's great to see the skills and technologies our scientists and engineers have developed for this mission being applied in other areas."

The Submarine Air Monitoring Instrument Team
Dr Mark Leese (Project Manager)
Dr Andrew Morris
Dr Simona Nicoara
Dr Tim Ringrose
Dr Simon Sheridan
Dr Andrew Morse
Nick Alderman



And the following team members that were absent:
Dr Max Barwell
Dr Brijen Hathi
Dr Bill Guthery

Lunar Mission One – An inspiration project open to global participation

Following hot on the heels of the scientific excitement and drama of Rosetta's Philae Lander, an announcement was made recently of an innovative UK-led space exploration project.

Lunar Mission One was announced at the 12th Reinventing Space Conference on November 19th at the Royal Society in London. The Open University is part of this exciting project with our academics contributing to the science and educational aspects as well as supporting the Trust that will oversee the project. This innovative project will give millions of people worldwide the opportunity to be part of space exploration and to contribute to the project's ambitious global STEM education goals. Further information on the project will be available from the Lunar Mission One website from November 19th.
<http://lunarmissionone.com/>

The funding for the first phase of this project is currently being sought through crowdfunding source using the Kickstarter platform (<https://www.kickstarter.com/projects/lunarmissionone/lunar-mission-one-a-new-lunar-mission-for-everyone>). Anyone can support this mission by pledging as little as £3 by visiting the Kickstarter link above. This project will only be funded if at least £600,000 is pledged by Wed, Dec 17 2014 11:59 PM +00:00. At the time of writing this report, the Lunar Mission One project has received backing from about 5000 supporters pledging a total of just under £430,000.

For more information about this mission and learning more about OU's involvement please visit the following OpenLearn website:

<http://www.open.edu/openlearn/science-maths-technology/british-led-mission-moons-south-pole-kickstart-new-generation-lunar-exploration>

Nigel News !! - And you think UK REF is tough ?

Portugal is a country many people think of a holiday destination where you can sample some local wines and enjoy the beaches (and golf courses). This is all true but this year I have been involved in a review of their Research. The 'Portuguese REF' is organised by the National Funding agency (FCT) who contracted the European Science Foundation to run the review. Portuguese research is conducted in 'Research Centres' which may be spread across several Universities geographically spread across the country. They report achievements from 2008-12 and their plans for 2015-2020. In a first round Centres are graded Exceptional, Excellent, Very Good, Good, Fair and Poor. Fair and Poor get no supporting funds while good get a minimal fund. Those considered Very Good to Exceptional are then subject to a site visit by the panel after which their final score is awarded

I was appointed Chair of Panel 'Exact Sciences' which is maths, physics and chemistry and served on Panel 07 (Multidisciplinary). The panels were selected from all over Europe with a few Expats (EU 'refugees' in USA). Panels consist of many leading researchers from across EU, a plethora of Deans, Pro-Vice chancellors, Centre Directors and even an ex-VC or two, so it was an interesting group who met to complete the exercise and make final awards on November 24-26. The results will be announced in January.

Unlike the UK REF Centres get to see the pre-scores and can appeal. Those centres not getting to stage 2 and site visit all appealed! The panel members faced direct approaches, vilification (on some rather nasty blogs) and there was a political and press campaign. Nevertheless we saw it through and the final results I feel both reflect the status of Portuguese research and start a 'culture change'. There is some very good science in Portugal and the PDocs and PhD students praise their supervision, opportunities and lifestyle (few want to leave!).

I hope the OU might find some good alliances with the best Portuguese Centres then more of us can enjoy the sun, the wine and the *bacalhau* (cod fish). I can also recommend Madeira (The island and the wine!) yes it does have a university as does the Azores !

Andrew Norton has: chaired the Royal Astronomical Society's Astronomy Awards Committee which is responsible for awarding the society's annual medals and prizes; carried out a PhD viva as external examiner in the Astronomy Group at Keele University; sat on the STFC Advisory Panel for Public Engagement.

Ross Burgon was invited to the opening of Space Studio Banbury, the first space school in the UK. *"Space Studio Banbury is a brand new, unique school catering for 14 - 18 year olds with an active interest in Science, Maths, Technology and Space. The Space Studio will have a real focus on Space Related Technologies. The aim overall is to develop very high quality Science and Maths education to prepare students exceptionally well for careers in space related industries, through an innovative curriculum combined with exposure to positive role models within the industries.-*

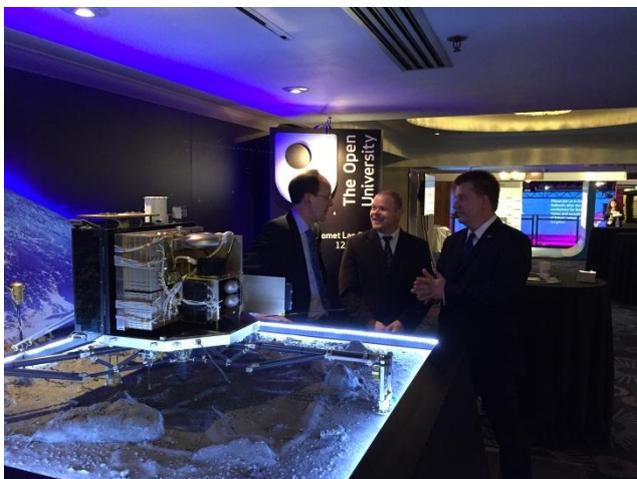
<http://www.spacestudiobanbury.org/>” The school aims to collaborate with Universities and businesses within the space industry.



A few days before the Rosetta landing, **Ross Burgon** and **Taff Morgan** joined the OU Communications and Business Development Teams at the CBI Conference in Park lane, London. The Philae lander model was decked out spectacularly and the OU was exhibit the centre of attention until R2-D2 came on stage ... can't compete with that.



Ross and Taff met with the CBI Director General John Cridland as well as numerous other interested delegates from the 1000-strong conference. The OU identified four areas of space research identified as having impact on industry and society – Rosetta, CEI, new methods of disease detection, submarine air monitoring.



Starting on Monday 1st December, Wild Weather with Richard Hammond, a new three-part series will be shown on BBC One at 9.00pm. **Stephen Lewis** of DPS was the Faculty nominated academic for this series. The episodes will be themed around wind, water and temperature and are intended to enrich and support the OU science curriculum. OpenLearn also has information in connection with the series subject areas. Watch the specially created “kitchen” experiments recreating an avalanche, dust storm, flood or tornado. Try your own experiments and share online. There is also a free Wild Weather wall poster available to order. For more information go to www.open.edu/openlearn/wildweather

Sally Jordan gave a keynote presentation on “Computer-marked assessment: Friend or foe?” at Dé Onderwijsdagen (“Education Days”) Pre Conference : “Digital testing” at the Beurs World Trade Center in Rotterdam on 10th November. There is much exciting work in e-assessment taking place in the Netherlands and Sally was delighted to be speaking to an audience of about 250 people, all of whom had chosen to come to a meeting about computer-based assessment and its impact on learning.



11th to 17th November. The Ptolemy team (**Andrew Morse, Simon Sheridan, Dan Andrews, Simeon Barber and Geraint Morgan**, with **Ian Wright** joining us several days later) at the Lander Control Centre in Cologne for the Philae landing. Within minutes of landing we were no longer following the script and had to adapt plans to the conditions. Ptolemy holds the record for being the first instrument to acquire mass spectra on a comet.

1st-3rd December. **Simon Sheridan** and **Andrew Morse** were at the Rosetta Science Working Team meeting in Darmstadt to present the initial results from Ptolemy. A very productive meeting with a cooperative atmosphere between the orbiter and lander instrument teams.

Funding Successes

Manish Patel has been awarded a research contract for €875,000 by the European Space Agency for developing critical hardware and software elements for the NOMAD instrument on the ESA ExoMars Trace Gas Orbiter mission. **Mark Leese, Jon Mason, Tim Ringrose, Adam Stevens** and **Daniel Dawson** form the crack commando unit working on this project, which is reaching an important milestone of flight hardware delivery.

Stephen Lewis has been awarded a €170,000 research contract as part of a UK consortium to develop further the Mars Climate Database in support of a new development for a dedicated software tool for engineers working on Mars mission planning. The consortium is led by **Manish Patel** at the Rutherford Appleton Laboratory, and the project is called the “Mars Modelling Information Tool for Engineers” (MarMITE).

Outreach

In the last few weeks, the DPS SEPnet outreach team have hosted the following groups for Observatory visits: Chesham Scouts, Broughton Beavers, Medbourne Brownies, Shenley Brownies, Broughton Cubs, Two Mile Ash Scouts, Great Holm Scouts. We also hosted a large group of KS2 children from the Premier Academy, Bletchley, for a space-themed morning of exploration. Many thanks to all those who helped out.

On the 31st of October **Helen Davidge, Nathan Bush, Paul Greer** and **George Pagomenos** ran a trial astronomy outreach project with a community group in Aylesbury. We spent an hour and a half playing well known games, but with a astronomy 'twist' eg Galaxy Dominoes, and each gave a short talk/quiz on the work we are doing.



Here are some of the comments, via twitter:

Super super morning, inspiring and had fun x thank you x hope to see you guys again soon The most enthusiastic four I've met that engaged the children and held their interest with games and quizzes. Highly recommend anyone to attend and be inspired x An amazing morning fun learning games and the four guys were great had a sense of humour and worked great with the kids enjoyed by us all xxx Fantastic morning thank you thank you for a fab Astro morning everyone loved it

And on the 13th of November, Broughton Cub Scouts visited the observatory. **Nathan Bush** ran the observatory session, and **Helen Davidge** gave a talk on the electromagnetic spectrum.

Some of the feedback:

My cubs all went home and flooded their parents with lots of information, and some have put a telescope on their Christmas list. All adults enjoyed the evening and even learnt something themselves, but mainly the adults were very happy as the cubs really enjoyed the evening.

Andrew Norton has given a total of 8 talks to the following groups: the Herschel Astronomical Society in Eton (Gamma-ray bursts – an astronomical detective story); Shropshire Astronomical Society (Exoplanets and how to find them); Rugby & District Astronomical Society (Gaia – mapping the Galaxy); Radlett U3A (Exoplanets and how to find them); Bedford School 6th Form (twice: Exoplanets and how to find them); Northampton Natural History Society – the annual Humfrey Lecture (PLATO and the search for Earth-like planets around Sun-like stars) and 200 KS2 children at Olney Middle School (We are made of star stuff).

Peter Fawdon and **Rebecca Thomas** gave talks at the Volcano Lunch seminar series at Oxford University in November.

In November **Seema Shoor** hosted an event in the RH Seminar room called 'After My PhD I did....' It was an opportunity for current students to hear the career stories from DPS Alumni, a chance to ask questions and get some valuable advice about working in a variety of sectors. The event was very successful and attracted a good number of speakers. All the feedback received has been very positive. Seema would like to thank colleagues for supporting the event, especially in relation to sourcing speakers, attending the event and helping with catering arrangements.



A group of undergraduates visited Diamond Light Source, they were given an insight into the workings of the site and the variety of research that is undertaken. Students were also given a tour of the site and were able to ask questions, linking the visit directly to their studies. A big thank you to **Pam Budd** who helped market this event to undergraduate students.



Rosetta outreach

To coincide with the Rosetta / Philae comet landing on 12th November a team from DPS, Communications and the Open Media Unit put on live event in the Berrill Lecture Theatre which was also streamed on the internet via Livestream. The event was expertly compered by Janet Sumner, who was joined on stage by **David Rothery**, **Ian Franchi** and **Ross Burgon** and via Skype with **Colin Snodgrass** and **Taff Morgan**. The lecture theatre was full with staff, students and alumni and over 2000 people in the Regions, Nations and worldwide watched the show online and celebrated with millions around the world ESA's Rosetta mission. You can still catch the event here: <http://new.livestream.com/ou-connections/rosetta> and you can read here <http://intranet.open.ac.uk/ouintra/story.aspx?id=28353> how the OU viewing figures were smashed.



National television and radio

Interviews with OU academics appeared on national television broadcast coverage 23 times during this period. Notable mentions include:

- BBC News, 12 November, 9:23am – Pre-recorded interviews with **Monica Grady** and **Simon Sheridan**. These interviews were then repeated several times throughout the morning.
- BBC Breakfast, 12 November, **Natalie Starkey** interviewed live on the sofa from the BBC breakfast studio in Salford.
- BBC News, 12 November, 11:07 – live interview with **Monica Grady** from ESA control centre in Darmstadt on the news that the lander had safely detached from the orbiter
- BBC Sky at Night, 16 November – special programme on Rosetta featuring interviews with **Ian Wright, Simon Sheridan, Andy Morse** and **Natalie Starkey**.

Interviews with OU academics on national radio broadcast appeared 13 times during this period. Notable mentions include:

- BBC Radio 4, The Today Programme, [8:15am](#) – **Monica Grady** is interviewed live on the programme

Monica also undertook a number of interviews for the BBC's General News Service which resulted in 35 appearances across several regional BBC radio stations. These interviews were also broadcast to international audiences three times via the BBC World Service.

Throughout this period 11 OU academics were interviewed or quoted. They were: **Professor Monica Grady, Professor Ian Wright, Dr Simon Green, Dr Natalie Starkey, Dr Ian Franchi, Dr Ross Burgon, Dr Simon Sheridan, Dr Geraint Morgan, Dr Andrew Morse, Emeritus Professor John Zarnecki, Professor David Rothery**.

There were 41 interviews with OU academics or mentions of the OU in all main national online news sites including The Times, The Guardian and The Independent. Across national print media, there were fourteen mentions. Notable mentions include:

- The Sunday Times, 16 November – **Simon Green** is quoted in an article by Bryan Appleyard

Since the start of November OU academics also provided eight articles on the mission for The Conversation. This includes an article by an academic from the arts faculty Jessica Hughes, Lecturer in Classical Studies, entitled 'Marriage of ancient and modern makes Rosetta mission a true space Odyssey'.

Twenty-two online regional (including NI, Scotland and Wales) news sites including Milton Keynes based media mentioned the OU's involvement in the Rosetta mission.

Across all other online news sources, the OU was mentioned 23 times.

During this period, the OU Media Relations team took 45 requests for interviews.

ITV Anglia, 19 November

The scientists involved in the Rosetta mission have been raising money for cancer research in memory of former colleagues, in a fun head shave.

<http://www.itv.com/news/anglia/2014-11-19/rosetta-scientists-at-milton-keynes-raise-money-in-memory-of-lost-colleagues/>

Also on:

BBC 3 Counties Radio:

BC Radio Norfolk

And front page of the MK News



Publications

This month Nigel Mason celebrated the publication of his 300th paper with a small celebration in the seminar room.

Development of Collisional Data Base for Elementary Processes of Electron Scattering by Atoms and Molecules. B P. Marinkovic, V Vujicic, G Sushko, D Vudragovic, D B Marinkovic S Djordjevic, S Ivanovic, M Nestic, D Jevremovic, A V Solov'yov and **N J Mason** NIMB Proceedings in press

Radiation damage of biomolecular systems: Nano-scale insights into Ion-beam cancer therapy. 2nd Nano-IBCT conference M A Smiatek, P Limão-Vieira, **N J Mason**, and A V Solov'yov, European Physical Journal D 68 d140612

Processing of analogues of plume fallout in cold regions of Enceladus by energetic electrons A Bergantini, S Pilling, **B G Nair, N J Mason, H J Fraser**. Astronomy and Astrophysics 570, A120

X-ray radiation of poly-L-arginine hydrochloride and multilayered DNA-coating **Agnieszka Styczynska**, Tony Nixon and **Nigel Mason** Eur. Phys. J. D **68** 333

Electron-impact total cross sections for inelastic processes for furan, tetrahydrofuran and 2,5-dimethylfuran C Limbachiya, M Vinodkumar, M Swadia, K Joshipura and **N Mason** Molecular Physics in press

Electron and positron induced processes. POSMOL 2013 P Limão-Vieira, R Campeanu, M Hoshino, O Ingólfsson, **N Mason**, Y Nagashima and H Tanuma European Physical Journal D 68 Article number d140564

Electron induced chemistry: A new frontier in astrochemistry **N J Mason, B Nair**, S Jheeta and E Szymańska. Faraday Discussions 168, 235-247

A novel method for the detection of plasma jet boundaries by exploring DNA damage B Bahnev, M D Bowden, **A Styczynska**, S Ptasińska, **N J Mason** and **N S J, Braithwaite** European Physical Journal D 68 Article number 140

Electron impact dissociation and VUV photoabsorption of frozen formamide B Sivaraman, **B G Nair**, B N Raja Sekhar, N C Jones, S V Hoffmann and **N J Mason** Chemical Physics Letters 608 404-417

Vacuum ultraviolet photoabsorption of pure solid ozone and its implication on the identification of ozone on Moon. B Sivaraman, **B G Nair**, B N Raja Sekhar, J I Lo, R Sridharan, B M Cheng and **N J Mason** Chemical Physics Letters 603 33-36

Dissociative electron attachment and dipolar dissociation in ethylene E Szymańska, **N J Mason**, E Krishnakumar, C Matias, A Mauracher, P Scheier and S, Denifl. International Journal of Mass Spectrometry 365-366 356-364

Multi-photon and electron impact ionisation studies of reactivity in adenine-water clusters B Barc, **M Ryszka**, J Pouilly, E Jabbour Al Maalouf, Z El Otell, J Tabet, R Parajuli, P J M Van Der Burgt, P. Limão-Vieira, P. Cahillane, **M Dampe**, **N J Mason** and **S P Eden** International Journal of Mass Spectrometry 365-366, 194-199

DNA damage induced by carbon ions (C³⁺) beam accessed by independent component analysis of infrared spectra M Raposo, M Coelho, P J Gomes, P Vieira, P A, Ribeiro, **N J Mason**, C A Hunniford, and R W McCullough International Journal of Radiation Biology 90 344-350

Electron impact induced anion production in acetylene E Szymańska, I Čadež, E Krishnakumar and **N J Mason** PCCP 16 3425-3432

Future studies on electron scattering: A renaissance **N J Mason** European Physical Journal D (in press)

Romain Tartèse, Mahesh Anand, Katherine H. Joy and **Ian A. Franchi** (2014). H and Cl isotope systematics of apatite in brecciated lunar meteorites Northwest Africa 4472, Northwest Africa 773, Sayh al Uhaymir 169, and Kalahari 009. Meteoritics and Planetary Sciences. DOI: 10.1111/maps.12398.

Social

Hooke Soc held their annual pumpkin carving competition for where everyone was a winner as shown below



Hooke Soc Live

presents

Hooke Fest 2014



Featuring a diverse range of acts and actors, including:

DPS House Band, playing seasonal and popular hits

Comedy Bingo with Roy

The James Mortimer Trio

Mohit's Christmas Log

Acoustic performances from JD Bodenan and George Pagomenos

Christmas Karaoke

Monday 15th December

Pavilion Activity Room

6 pm

Free entry

All welcome!

The annual DPS Christmas lunch will take place on 17th December.