

# MPS Research Update

## October & November 2017

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## **Staff mentions in the press, etc. Public Engagement,**

### **Science on the Buses.**

First curated science bus journey on Brighton Buses, led by Dr Darren Baskill, 30 November 2017.

**Upcoming: British Science festival 2018.** Held in Brighton in 2017 and will be held in Hull in 2018.  
Call for proposals (deadline 19 Feb 2018) is here: <http://bit.ly/2k5cABP>

## **Awards and Recognitions**

**Dr Charanjit Khosa** recently was awarded a prestigious **Royal Society Newton Fellowship**, to work with Dr Sebastian Jaeger and the TPP group. She will join us on 31 March 2018.

**Dr Mark Sargent** was named as new co-chair of the Square Kilometre Array (SKA) Extragalactic Continuum Science Working Group (SWG) and took over in this new function in mid-October 2017.

**Dr Mark Sargent** was also awarded 60 hours of JCMT time together with Korean collaborators on the JINGLE II survey.

## **Areas of Knowledge Exchange**

### **Sussex-Ukraine partnership to tackle global crop problems.**

Dr Konstantin Blyuss visited the National Academy of Sciences of Ukraine to collaborate on developing techniques for improving crop productivity. Mathematical models developed recently by Dr Blyuss have suggested significant new insights for reducing crop losses. A 'Memorandum of Understanding' for research cooperation was signed between the University of Sussex and the Prydniprovsky Scientific Centre.

### **Reported by Dr Luiz H Vale Silva.**

Deviations of some predictions of the Standard Model (SM) of Particle Physics with respect to data in B-meson decays.

## **Talks delivered (outside own research groups)**

### **“Network Science and Epidemics on Networks”**

Public talk by Dr Istvan Kiss, Thursday 05 October 2017, University of Sussex.

### **“Detecting the (nearly) invisible: neutrinos and dark matter”**

Public talk by Dr Simon Peeters, Thursday 12 October 2017, University of Sussex.

### **“The Cosmological Constant Problem”.**

Public talk by Dr David Seery, Thursday 02 November 2017, University of Sussex.

### **“Quantum computers and their potential to revolutionise our lives”.**

Talk at Oxford e-Research Centre by Dr Seb Weidt. 09 November 2017, Oxford.

### **“Hic Sunt Leones – Hunting for New Physics at the Large Hadron Collider”.**

Professorial/Public talk by Prof Antonella De Santo, Wednesday 15 November 2017, University of Sussex.

### **“A journey through Quantum Technology – Mirrors, Gems and Combs: Restyling of Quantum Tech with Photonics.”**

Public talk by Dr Alessia Pasquazi, Thursday 30 November 2017, University of Sussex.

### **“Stochastic homogenisation of free-discontinuity problems”**

Research visit and talk delivered by Dr Filippo Cagnetti at ETH, Zurich, Switzerland (invited by Alessio Figalli), 10-18 October 2017, and at University of Texas at Austin, USA (invited by Francesco Maggi), 6-30 November 2017.

### **“Quantum-enhanced multiparameter estimation for low measurement counts”**

Invited talk by Prof Jacob Dunningham at the Australia and New Zealand Conference on Optics and Photonics (ANZCOP), Queenstown, NZ. Wednesday 06 December 2017.

### **“Gravitational waves from the Big Bang”**

Popular talk to Brighton Nerd Nite by Prof Mark Hindmarsh, 23 October 2017.

**“Gravitational waves from phase transitions in the early Universe”**

Colloquium presentation at the Max Planck Institute for Theoretical Physics, Munich, by Prof Mark Hindmarsh, 07 November 2017.

**“The Physics of Quenching Massive Galaxies at High Redshift”.**

Invited talk at the Lorenz Centre by Dr Mark Sargent, October 2017.

**A talk at RHUL for the NExT Physics Meeting** delivered by Dr Luiz H Vale Silva, 01 November 2017. This triggered further discussions with researchers in Southampton and London.

**Presentation to Leonardo UK** at their premises in Edinburgh UK by Dr Jose Verdu Galiana, 11 December 2017.

The Sussex

## **Impact**

An **Innovate UK award** has been won by Matthias Keller and Alessia Pasquazi.

The **National Quantum Technologies Showcase** 2017 was held at the Queen Elizabeth II Conference centre in Westminster November 22.

<https://www.quantumcommshub.net/events/national-quantum-technologies-showcase-2017/>.

Sussex IQT group (Prof W Hensinger) showed a model of a quantum computer prototype based on a blueprint published earlier this year. A second exhibit showed a model of a portable magnetic field sensor. Visitors used interactive models to learn the working principles of quantum devices. ITCM group (Prof M Keller) exhibited the prototype for an atomic clock and a novel quantum networking interface. QSUG group (Prof Peter Krueger) showed the technology of magnetometry for brain imaging.

**Prof Alan Dalton and team** developed a way to make smart phone screens cheaper, less brittle and environmentally friendly.

<http://www.sussex.ac.uk/staff/newsandevents/?id=42293>

**Dr Max Jensen.** For the KTN Study Group we received funding from the Sussex Research Impact fund in addition to the KTN funding — in total of £12k.

**Dr Jose Verdu Galiana.** A report on “Quantum Illumination with a trapped electron” was delivered to Leonardo UK, funder of research project in his group.

### Impact Case Studies under development

- The Sussex-Ukraine partnership investigating crop losses (Dr K Blyuss).
- Research in collaboration with Ambient Environmental Assessment on flood risk assessment (Dr Omar Lakkis).
- Research between Mathematics Department and the National Grid (Dr Andrew Duncan).

### Significant Research outcomes – results

*This section is intentionally blank this month while we calibrate “significant”.*

### Other news

The Sussex Centre for Quantum Technologies (Director, Prof W Hensinger) has now been awarded University Research Centre status.  
<http://www.sussex.ac.uk/scqt/>

Philip Harris: “This is a tremendous step forwards and will significantly enhance visibility -- hopefully helping to bring in plenty of research funding...”

**Materials Physics group.** Recent publication in the top 5% of all research outputs scored by Altmetrics.

<https://acs.altmetric.com/details/26840261>

**Dr Bertram Duering** has become an expert reviewer for European Commission in H2020 Marie Skłodowska-Curie actions individual fellowship 2017 call (mathematics, economics, and environment panels). He has also become an expert grant reviewer for the Netherlands Organisation for Scientific Research (NWO).

**Dr Luiz H Vale Silva** participated to a meeting in Paris in mid-October to discuss the future of the extraction of the elements of the CKM matrix in the SM and Beyond.

**Department of Mathematics. Publications deposited in SRO in October & November 2017.**

**To view the paper enter the SRO ID as <https://sro.sussex.ac.uk/nnnnn>**

<b>Sussex Author</b>	<b>SRO ID</b>	<b>Status</b>	<b>Author(s)</b>	<b>Output Title</b>	<b>Volume Title</b>
Blyuss, Konstantin	70503	Published	Sherborne, Neil; Miller, Joel C; Blyuss, Konstantin B; Kiss, Istvan Z	Mean-field models for non-Markovian epidemics on networks	Journal of Mathematical Biology
Blyuss, Konstantin	70504	Published	Rahman, Bootan; Blyuss, Konstantin; Kyrychko, Yuliya	Aging transition in systems of oscillators with global distributed-delay coupling	Physical Review E
Blyuss, Konstantin	70619	Published	Bauer, Larissa; Bassett, Jason; Hoevel, Philipp; Kyrychko, Yuliya; Blyuss, Konstantin	Chimera states in multi-strain epidemic models with temporary immunity	Chaos
Blyuss, Konstantin	71131	Published	Agaba, G O; Kyrychko, Y N; Blyuss, K B	Dynamics of vaccination in a time-delayed epidemic model with awareness	Mathematical Biosciences
Duering, Bertram	70558	Accepted	Burger, Martin; Düring, Bertram; Kreusser, Lisa Maria; Markowich, Peter A; Schönlieb, Carola-Bibiane	Pattern formation of a nonlocal, anisotropic interaction model	Mathematical Models and Methods in Applied Sciences
Duering, Bertram	70715	Accepted	Carrillo, José A; Düring, Bertram; Matthes, Daniel; McCormick, David S	A Lagrangian scheme for the solution of nonlinear diffusion equations using moving simplex meshes	Journal of Scientific Computing
Duncan, Andrew	71224	Published	Bierkens, Joris; Duncan, Andrew	Limit theorems for the zig-zag process	Advances in Applied Probability
Giesl, Peter A	71249	Accepted	Giesl, Peter; McMichen, James	Determination of the area of exponential attraction in one-dimensional finite-time systems using meshless collocation	Discrete and Continuous Dynamical Systems - Series B
Kiss, Istvan Z	70424	Accepted	Simon, Peter L; Kiss, Istvan Z	On bounding exact models of epidemic spread on networks	Discrete and Continuous Dynamical Systems - Series B
Kiss, Istvan Z	70503	Published	Sherborne, Neil; Miller, Joel C; Blyuss, Konstantin B; Kiss, Istvan Z	Mean-field models for non-Markovian epidemics on networks	Journal of Mathematical Biology
Kyrychko, Yuliya	70504	Published	Rahman, Bootan; Blyuss, Konstantin; Kyrychko, Yuliya	Aging transition in systems of oscillators with global distributed-delay coupling	Physical Review E
Kyrychko, Yuliya	70619	Published	Bauer, Larissa; Bassett, Jason; Hoevel, Philipp; Kyrychko, Yuliya; Blyuss, Konstantin	Chimera states in multi-strain epidemic models with temporary immunity	Chaos
Kyrychko, Yuliya	71131	Published	Agaba, G O; Kyrychko, Y N; Blyuss, K B	Dynamics of vaccination in a time-delayed epidemic model with awareness	Mathematical Biosciences
Madzvamuse, Anotida	70777	Published	Frittelli, Massimo; Madzvamuse, Anotida; Sgura, Ivonne; Venktaraman, Chandrasekhar	Preserving invariance properties of reaction-diffusion systems on stationary surfaces	IMA Journal of Numerical Analysis

McCormick, David S	70715	Accepted	Carrillo, José A; Düring, Bertram; Matthes, Daniel; McCormick, David S	A Lagrangian scheme for the solution of nonlinear diffusion equations using moving simplex meshes	Journal of Scientific Computing
Scalas, Enrico	70939	Accepted	Chen, J M; Hawkes, A G; Scalas, E; Trinh, M	Performance of information criteria for selection of Hawkes process models of financial data	Quantitative Finance
Taheri, Ali	70844	Published	Day, Stuart; Taheri, Ali	A formulation of the Jacobi coefficients $cl_j(a,b)$ via Bell polynomials	Advances in Operator Theory
Taheri, Ali	70850	Accepted	Day, Stuart; Taheri, Ali	Geodesics on $SO(n)$ and a class of spherically symmetric maps as solutions to a nonlinear generalised harmonic map problem	Topological Methods in Nonlinear Analysis
Taheri, Ali	70935	Accepted	Morris, Charles; Taheri, Ali	Annular rearrangements, incompressible axis-symmetric whirls and $L^1$ -local minimisers of the distortion energy	Nonlinear Differential Equations and Applications
Taheri, Ali	70937	Accepted	Awonusika, Richard Olu; Taheri, Ali	A spectral identity on Jacobi polynomials and its analytic implications	Canadian Mathematical Bulletin
Vysotskiy, Vladislav	71425	Published	Kabluchko, Zakhar; Vysotsky, Vladislav; Zaporozhets, Dmitry	Convex hulls of random walks: expected number of faces and face probabilities	Advances in Mathematics

**Department of Physics & Astronomy. Publications deposited in SRO in October & November 2017.**

To view the paper enter the SRO ID as <https://sro.sussex.ac.uk/nnnnn>

Sussex Author	SRO ID	Status	Author(s)	Output Title	Volume Title
Allbrooke, Benedict MM	71193	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Evidence for light-by-light scattering in heavy-ion collisions with the ATLAS detector at the LHC	Nature Physics
Allbrooke, Benedict MM	70941	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Fiducial, total and differential cross-section measurements of t-channel single top-quark production in pp collisions at 8 TeV using data collected by the ATLAS detector	European Physical Journal C: Particles and Fields
Allbrooke, Benedict MM	71544	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Identification and rejection of pile-up jets at high pseudorapidity with the ATLAS detector	European Physical Journal C
Allbrooke, Benedict MM	70948	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Jet energy scale measurements and their systematic uncertainties in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D
Allbrooke, Benedict MM	70837	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Jet reconstruction and performance using particle flow with the ATLAS Detector	The European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	71550	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of b-hadron pair production with the ATLAS detector in proton-proton collisions at $\sqrt{s}=8$ TeV	Journal of High Energy Physics
Allbrooke, Benedict MM	71559	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of detector-corrected observables sensitive to the anomalous production of events with jets and large missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector	The European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	70959	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of inclusive and differential cross sections in the $H \rightarrow ZZ^* \rightarrow 4l$ decay channel in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	71556	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of jet pT correlations in Pb + Pb and pp collisions at $\sqrt{s_{NN}}=2.76$ TeV with the ATLAS detector	Physics Letters B



Allbrooke, Benedict MM	70943	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of the cross section for inclusive isolated-photon production in pp collisions at $\sqrt{s}=13\text{TeV}$ using the ATLAS detector	Physics Letters B
Allbrooke, Benedict MM	71542	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of the cross-section for electroweak production of dijets in association with a Z boson in pp collisions at $\sqrt{s}=13\text{TeV}$ with the ATLAS detector	Physics Letters B
Allbrooke, Benedict MM	70949	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of the inclusive jet cross-sections in proton-proton collisions at $\sqrt{s}=8\text{ TeV}$ with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70942	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of the kt splitting scales in $Z \rightarrow \ell\ell$ events in pp collisions at $\sqrt{s}=8\text{ TeV}$ with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70958	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of the $W^+W^-$ production cross section in pp collisions at a centre-of-mass energy of $\sqrt{s}=13\text{ TeV}$ with the ATLAS experiment	Physics Letters B
Allbrooke, Benedict MM	70947	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of $W\pm W\pm$ vector-boson scattering and limits on anomalous quartic gauge couplings with the ATLAS detector	Physical Review D
Allbrooke, Benedict MM	70946	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurement of $WW/WZ\ell^+\ell^-$ production with the hadronically decaying boson reconstructed as one or two jets in pp collisions at $\sqrt{s}=8\text{ TeV}$ with ATLAS, and constraints on anomalous gauge couplings	The European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	70950	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurements of electroweak $Wjj$ production and constraints on anomalous gauge couplings with the ATLAS detector	The European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	71032	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Measurements of long-range azimuthal anisotropies and associated Fourier coefficients for pp collisions at $\sqrt{s}=5.02$ and $13\text{ TeV}$ and p+Pb collisions at $\sqrt{s_{NN}}=5.02\text{ TeV}$ with the ATLAS detector	Physical Review C
Allbrooke, Benedict MM	70834	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Sutton, M R; Vivarelli, I; and, The ATLAS Collaboration	Performance of the ATLAS track reconstruction algorithms in dense environments in LHC Run 2	European Physical Journal C: Particles and Fields
Allbrooke, Benedict MM	71195	Published		Performance of the ATLAS Transition Radiation Tracker in Run 1 of the LHC: tracker properties	Journal of Instrumentation

Allbrooke, Benedict MM	71554	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for dark matter produced in association with a Higgs boson decaying to $b\bar{b}$ using 36.1 fb of pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physics Letters B
Allbrooke, Benedict MM	71551	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for heavy Higgs bosons $A=H$ decaying to a top quark pair in pp collisions at $\sqrt{s}=8$ TeV with the ATLAS detector	Physical Review Letters (PRL)
Allbrooke, Benedict MM	71558	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for heavy resonances decaying to a W or Z boson and a Higgs boson in the $q\bar{q}(\gamma)b\bar{b}$ final state in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physics Letters B
Allbrooke, Benedict MM	71552	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for new high-mass phenomena in the dilepton final state using 36 fb-1 of proton-proton collision data at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70839	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for new phenomena in a lepton plus high jet multiplicity final state with the ATLAS experiment using $\sqrt{s}=13$ TeV proton-proton collision data	Journal of High Energy Physics
Allbrooke, Benedict MM	71101	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for new phenomena in dijet events using 37 fb-1 of pp collision data collected at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D
Allbrooke, Benedict MM	71555	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for pair production of heavy vector-like quarks decaying to high-pTW bosons and b quarks in the lepton-plus-jets final state in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	71474	Accepted	Allbrooke, Benedict; Asquith, Lily; Cerri, Alessandro; DeSanto, Antonella; Salvatore, Fabrizio; Suruliz, Kerim; Sutton, Mark; Vivarelli, Iacopo	Search for supersymmetry in events with b-tagged jets and missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70838	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for the dimuon decay of the Higgs boson in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review Letters
Allbrooke, Benedict MM	70835	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Search for top quark decays $t \rightarrow qH$ , with $H \rightarrow ??$ , in $\sqrt{s}=13$ TeV pp collisions using the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70940	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Searches for the $Z\gamma$ decay mode of the Higgs boson and for new high-mass resonances in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics

Allbrooke, Benedict MM	70841	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Studies of Z $\gamma$ production in association with a high-mass dijet system in pp collisions at $\sqrt{s}$ = 8 TeV with the ATLAS detector	Journal of High Energy Physics
Allbrooke, Benedict MM	70836	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Study of WW $\gamma$ and WZ $\gamma$ production in pp collisions at $\sqrt{s}$ =8 TeV and search for anomalous quartic gauge couplings with the ATLAS experiment	European Physical Journal C: Particles and Fields
Allbrooke, Benedict MM	70945	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Topological cell clustering in the ATLAS calorimeters and its performance in LHC Run 1	The European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	70951	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Top-quark mass measurement in the all-hadronic $t\bar{t}$ decay channel at $\sqrt{s}$ =8 TeV with the ATLAS detector	Journal of High Energy Physics
Asquith, Lily	71544	Published	Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Salvatore, F; Santoyo Castillo, I; Suruliz, K; Sutton, M R; Vivarelli, I; and 0 other(s)	Identification and rejection of pile-up jets at high pseudorapidity with the ATLAS detector	European Physical Journal C
Ayres, Nicholas	71045	Published	Abel, C; Ayres, N J; Griffith, W C; Harris, P G; Musgrave, M; Shiers, D; et al.,	Search for axion-like dark matter through nuclear spin precession in electric and magnetic fields	Physical Review X
Byrnes, Christian T	71102	Published	Hardwick, Robert J; Vennin, Vincent; Byrnes, Christian T; Torrado, Jesús	The stochastic spectator	Journal of Cosmology and Astroparticle Physics
Calmet, Xavier	70707	Published	Calmet, Xavier	Cosmological evolution of the Higgs boson's vacuum expectation value	European Physical Journal C: Particles and Fields
Calmet, Xavier	70535	Published	Calmet, X; Casadio, R; Kamenshchik, A Yu; Teryaev, O V	Graviton propagator, renormalization scale and black-hole like states	Physics Letters B
Calmet, Xavier	71635	Published	Alexeyev, S O; Calmet, X; Latosh, B N	Gravity induced non-local effects in the standard model	Physics Letters B
Dalton, Alan B	70469	Accepted	Large, Matthew J; Ogilvie, Sean P; Meloni, Manuela; Amorim Graf, Aline; Fratta, Giuseppe; Salvage, Jonathan; King, Alice A K; Dalton, Alan B	Functional liquid structures by emulsification of graphene and other two-dimensional nanomaterials	Nanoscale

Dalton, Alan B	70468	Published	King, Alice; Matta-Domjan, Brigitta; Large, Matthew; Matta, Csaba; Ogilvie, Sean Paul; Bardi, Niki; Byrne, Hugh; Zakhidov, Anvar; Jurewicz, Izabela; Velliou, Eirini; and 2 other(s)	Pristine carbon nanotube scaffolds for the growth of chondrocytes	Journal of Materials Chemistry
Dalton, Alan B	70465	Published	Large, Matthew; Ogilvie, Sean Paul; Alomairy, Sultan; Vöckerodt, Terence; Myles, David; Cann, Maria; Chan, Helios; Jurewicz, Izabela; King, Alice; Dalton, Alan B	Selective mechanical transfer deposition of Langmuir graphene films for high-performance silver nanowire hybrid electrodes	Langmuir
Fernandez Lorenzo, Samuel	70709	Accepted	Nevado, Pedro; Fernandez-Lorenzo, Samuel; Porras, Diego	Topological edge states in periodically-driven trapped-ion chains	Physical Review Letters
Hartnell, Jeff J	71043	Published	Baird, M; Blackburn, T; Davies, J P; Hartnell, J; Méndez, D P; Vinton, L; Zamorano, B; The NOvA Collaboration,	Search for active-sterile neutrino mixing using neutral-current interactions in NOvA	Physical Review D
Hensinger, Winfried K	70887	Published	Hensinger, Winfried	Quantum computing	What's Next? Even Scientists Can't Predict the Future - or Can They?
Loveday, Jonathan N	71284	Accepted	Loveday, J; Christodoulou, L; Norberg, P; Peacock, J A; Baldry, I K; Bland-Hawthorn, J; Brown, M J I; Colless, M; Driver, S P; Holwerda, B W; and 1 other(s)	Galaxy and Mass Assembly (GAMA): small-scale anisotropic galaxy clustering and the pairwise velocity dispersion of galaxies	Monthly Notices of the Royal Astronomical Society
Loveday, Jonathan N	71637	Accepted	Baldry, I K; Liske, J; Brown, M J I; Robotham, A S G; Driver, S P; Loveday, J; Wilkins, S M; et al.,	Galaxy and Mass Assembly (GAMA): the G02 field, Herschel-ATLAS target selection and data release 3	Monthly Notices Of The Royal Astronomical Society
Loveday, Jonathan N	70567	Accepted	Loveday, Jonathan; Wilkins, Stephen	GAMA/G10-COSMOS/3D-HST: The $0 < z < 5$ cosmic star-formation history, stellar- and dust-mass densities	Monthly Notices Of The Royal Astronomical Society
Loveday, Jonathan N	70784	Published	Gonzalez-Nuevo, J.; Lapi, A.; Bonavera, L.; Danese, L.; de Zotti, G.; Negrello, M.; Bourne, N.; Cooray, A.; Dunne, L.; Dye, S.; and 6 other(s)	H-ATLAS/GAMA: magnification bias tomography. Astrophysical constraints above $\sim 1$ arcmin	Journal of Cosmology and Astroparticle Physics
Loveday, Jonathan N	71041	Published	Martindale, Hazel; Thomas, Peter A; Henriques, Bruno M; Loveday, Jon	Towards a consistent model for both the Hi and stellar mass functions of galaxies	Monthly Notices Of The Royal Astronomical Society
Oliver, Seb J	71037	Accepted	Duncan, Kenneth J; Brown, Michael J I; Williams, Wendy L; Best, Philip N; Buat, Veronique; Burgarella, Denis; Jarvis, Matt J; Malek, Katarzyna; Oliver, S J; Röttgering, Huub J A; and 0 other(s)	Photometric redshifts for the next generation of deep radio continuum surveys - I: template fitting	Monthly Notices Of The Royal Astronomical Society

Oliver, Seb J	71034	Published	Oliver, Seb	Rise of the titans: a dusty, hyper-luminous "870 $\mu\text{m}$ riser" galaxy at $z \sim 6$	Astrophysical Journal
Pasquazi, Alessia	70456	Published	Tomasino, Alessandro; Mazhorova, Anna; Clerici, Matteo; Peccianti, Marco; Ho, Sze-Phing; Jestin, Yoann; Pasquazi, Alessia; Markov, Andrey; Jin, Xin; Piccoli, Riccardo; and 5 other(s)	Solid-state-biased coherent detection of ultra-broadband terahertz pulses	Optica
Romer, Kathy K	70391	Published	Romer, A K; The DES Collaboration,	OzDES multifibre spectroscopy for the Dark Energy Survey: three year results and first data release	Monthly Notices Of The Royal Astronomical Society
Sargent, Mark	71340	Published	Dannerbauer, H; Lehnert, M D; Emonts, B; Ziegler, B; De Breuck, C; Hatch, N; Kodama, T; Koyama, Y; Kurk, J; Matiz, T; and 9 other(s)	The implications of the surprising existence of a large, massive CO disk in a distant protocluster	Astronomy & Astrophysics
Seery, David	71610	Published	de la Bella, Lucía Fonseca; Regan, Donough; Seery, David; Hotchkiss, Shaun	The matter power spectrum in redshift space using effective field theory	Journal of Cosmology and Astroparticle Physics
Totero Gongora, Juan Sebastian S	69653	Published	Totero Gongora, Juan S; Miroshnichenko, Andrey E; Kivshar, Yuri S; Fratalocchi, Andrea	Anapole nanolasers for mode-locking and ultrafast pulse generation	Nature Communications
Totero Gongora, Juan Sebastian S	69649	Published	Totero Gongora, Juan Sebastian; Favraud, Gael; Fratalocchi, Andrea	Fundamental and high-order anapoles in all-dielectric metamaterials via Fano-Feshbach modes competition	Nanotechnology
Totero Gongora, Juan Sebastian S	69647	Published	Galinski, Henning; Favraud, Gael; Dong, Hao; Totero Gongora, Juan Sebastian; Gregory, Favaro; Döbeli, Max; Spolenak, Ralph; Fratalocchi, Andrea; Capasso, Federico	Scalable, ultra-resistant structural colors based on network metamaterials	Light Science and Applications
Wetzel, Benjamin RL	71106	Published	Zhang, Yanbing; Reimer, Christian; Wu, Jenny; Roztock, Piotr; Wetzel, Benjamin; Little, Brent E; Chu, Sai T; Moss, David J; Eggleton, Benjamin J; Kues, Michael; and 0 other(s)	Multichannel phase-sensitive amplification in a low-loss CMOS-compatible spiral waveguide	Optics Letters

Pfact	PI/Co-I	Principal Funder	Funder Programme	Project Title	Overall Applied Amount £	Notes
<b>Submitted</b>						
8532	Calmet, Xavier	ROYAL SOCIETY	RSOC Royal Society Research Professorships	Effective Quantum Gravity on Earth and in the Sky	1,195,525	
8296	Duncan, Andrew	NERC-NATURAL ENVIRONMENT RESEARCH COUNCIL	None	Improved Monitoring of Renewable Power Generation	148,478	
8819	Hindmarsh, Mark B	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	STFC Public Engagement Spark Awards	JWST Thermal Photobooth	6,753	
8800	Iliev, Ilian T	LEVERHULME TRUST	Leverhulme Research Fellowship	Development of complete simulation and analysis framework for Cosmic Dawn studies	47,760	
8637	Krueger, Peter N	EUROPEAN UNION	H2020 - FET Open	QuantumEye: A quantum eye on smart nanomaterials	793,029	
8777	Litim, Daniel F	LEVERHULME TRUST	Leverhulme Trust Visiting Professorship	Visiting Professorship - Gudrun Hiller	14,955	
8862	Oliver, Seb J / During, B,	RCUK - Research Councils UK	GCRF - Migration Hub	GCRF Migration Hub	12,153,887	Involvement in Michael Collyer's interdisciplinary application - MPS total FEC 904606
8833	Oliver, Seb J	TECHNOLOGY STRATEGY BOARD	TSB Emerging and Enabling Technologies	Industrial Reciprocating Engine & Compressor Prescriptive Diagnostics	26,527	
8627	Oliver, Seb J	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	STFC RCUK Innovation Fellowship	Data Intensive Science Innovation Fellows @ DISCnet	306,952	
7313	Oliver, Seb J	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	None	DISCnet: Data Intensive Science Centre in SEPnet	581,424	
8493	Oliver, Seb J	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	GCRF - Foundation Award 2017	Applying Astronomy Data Analysis to enhance disaster forecasting	99,654	

8794	Pasquazi, Alessia	EPSRC-ENGINEERING & PHYSICAL SCIENCES RESEARCH COUNCIL	None	Industrial Pathway to Micro-Comb Lasers	580,169	
8804	Pasquazi, Alessia	ROYAL SOCIETY	RSOC International Exchanges Scheme	Novel Materials and Devices for THz Science (MASTERS)	10,050	
8794	Pasquazi, Alessia	EPSRC-ENGINEERING & PHYSICAL SCIENCES RESEARCH COUNCIL	RCUK Innovation Fellowships Outlines	Industrial Pathways to Micro-Comb Lasers	580,169	
8815	Peeters, Simon JM	ROYAL SOCIETY	RSOC International Exchanges Scheme	Neutrino physics using pioneering liquid scintillator detector technology	10,000	
8706	Verdu Galiana, Jose L	ROYAL ACADEMY OF ENGINEERING	RAE Chair in Emerging Technologies	Quantum Mass Spectrometry and Quantum Microwave Engineering	1,300,000	
8615	Vivarelli, Iacopo	ROYAL SOCIETY	RSOC International Exchanges Scheme	Direct stau production with the ATLAS detector at the LHC	11,400	
8680	Wilkins, Stephen M	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	STFC Public Engagement Spark Awards	An animated introduction to JWST	15,000	
8749	Wilkins, Stephen M	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	STFC-Public Engagement Nucleus Awards	Engaging Diverse Audiences with JWST	97,579	
8680	Wilkins, Stephen M	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	Public Engagement Awards	An animated introduction to JWST	15,000	
8750	Wilkins, Stephen M	LEVERHULME TRUST	Leverhulme Research Fellowship	Exploring the Epoch of Reionisation With the James Webb Space Telescope	53,280	
<b>Forecasted</b>						
8577	Byrnes, Christian	ROYAL SOCIETY	RSOC Research Fellows Enhancement Award	Primordial black holes, dark matter and inflation	81,555	
8036	Hensinger, Winnie	Innovate UK/EPSRC	Commercialisation of Quantum Technologies 3	ESCHER: Establishing Supply Chains for Emergent Quantum Computers	308,326	
7989	Jaeger, Sebastian	ROYAL SOCIETY	RSOC Newton International Fellowships	Flavour Probes of Unified Theories in the LHC/LHCb/Belle2 Era	99,000	
7738	Keller, Matthias	EUROPEAN UNION	ITN	LIMQUET (Light-Matter Interfaces for Quantum Enhanced Technology)	191,687	
8581	Keller, Matthias	Innovate UK/EPSRC	Commercialisation of Quantum Technologies 4	IOTA: Compact Ion Clock for Precision Timing Applications	248,840	

8041	Orucevic, Fedja	TECHNOLOGY STRATEGY BOARD	None	OPTAMOT: Optimised Designs for Additively Manufactured Magneto Optical Traps	76,604	
8493	Oliver, Seb	STFC-SCIENCE AND TECHNOLOGY FACILITIES COUNCIL	GCRF Foundation Award 2017	Applying Astronomy Data Analysis to enhance disaster forecasting	99,654	
8138	Wilkins, Stephen M	ROYAL SOCIETY	RSOC International Exchanges Scheme	Exploring the Epoch of Reionisation with the James Webb Space Telescope	10,000	
<b>Awarded</b>						
8937	De Santo, Antonella	Durham University	IPPP Associateship	IPPP Associateship 2017-2018	3,000	
8511	Duncan, Andrew	The Alan Turing Institute	Secondment	Data Centric Engineering (Secondment)	23,731	
7566	Hensinger, Winnie	Oxford Hub via EPSRC	EPSRC Networked Quantum Information Technologies	Versatile ultra-stable current supplies for quantum technologies	208,052	
7920	Jenssen, Max	Innovate UK/TSB	Innovate UK energy Catalyst - Early Stage - Round 4	Electrical and thermal storage optimisation in a virtual power plant	6,403	Co-I, 5% FTE involvement in Spyros Skarvelis-Kazakos (EngInf)'s bid - £80,083

<b>Funding Opportunities</b>			
<b>Funder</b>	<b>Scheme</b>	<b>Deadline</b>	<b>Hyperlink</b>
Universite de Bordeaux	International Post-Doctorates	26/11/2017	<a href="http://idex.u-bordeaux.fr/n/Talents/International-Post-Doctorates/r3137.html">http://idex.u-bordeaux.fr/n/Talents/International-Post-Doctorates/r3137.html</a>
Universite de Bordeaux	Junior Chairs	26/11/2017	<a href="http://idex.u-bordeaux.fr/n/Talents/Junior-Chairs/r3020.html">http://idex.u-bordeaux.fr/n/Talents/Junior-Chairs/r3020.html</a>
Universite de Bordeaux	Visiting scholars	12/11/2017	<a href="http://idex.u-bordeaux.fr/n/Talents/Visiting-scholars/r3022.html">http://idex.u-bordeaux.fr/n/Talents/Visiting-scholars/r3022.html</a>
European Commission	MSCA Innovative Training Networks (ITN)	17/01/2018	<a href="http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-itn-2018.html">http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-itn-2018.html</a>
ERC	Consolidator Grants	15/02/2018	<a href="http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/erc-2018-cog.html">http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/erc-2018-cog.html</a>