

# **MPS Research Update**

## **September 2019**

### **CONTENTS**

- Staff mentions in the press, public engagement
- Awards & Recognitions
- Areas of Knowledge Exchange
- Talks delivered
- Impact
- Significant research outcomes
- Other news
- Grants – Submitted, Forecasted & Awarded
- Outputs – Accepted and Published

### Staff mentions in the press, public engagement

DUNE construction award has been awarded to **Dr Griffith, Prof Hartnell, and Prof Peeters**.  
“£1.1M for four years, starting on the 1st of October. This grant will enable us to maintain, and even expand, our leadership within this international collaboration and prepare for the exciting physics programme of this experiment”.

**John Gribbin’s** has been shortlisted for two book prizes:

<https://www.bshs.org.uk/bshs-hughes-prize-shortlist-announced>, and featured on BBC R4 *Inside Science* <https://royalsociety.org/news/2019/08/insight-investment-book-prize-shortlist/>.

### Awards & Recognitions

No news reported in this area.

### Areas of Knowledge Exchange

**Dr Conor Boland** gave expert advice on road-mapping activity on the topic "*Graphene-Elastomer Composites*" with a team from Fraunhofer ISI in conjunction with the EU funded Graphene Flagship scheme.

**Iacopo Vivarelli** was one of the four scientific organisers of the workshop, "*Pushing the Boundaries...*" held in Durham.

**Omar Lakkis** exchanged knowledge on:

1. Environmental modelling (flood risk management).
2. Optics and lense design.
3. Heat exchange and electric storage modelling.

### Talks Delivered

**Enrico Scalas** co-organised (with **Jozsef Lorinczi** (Loughborough) and **Charalambos Markidakis** (FORTH Crete and Sussex)) the *7th edition of Fractional Calculus Probability and Non-Local Operators* that took place at the University of Sussex from 26-28<sup>th</sup> September 2019. The workshop has been organised with funding from the H2020 ITN project ModCompShock (<http://modcompshock.eu/>) coordinated by Ch. Makridakis at the Department of Mathematics of the University of Sussex.

More info at: <http://sussex.ac.uk/math/research/fcpnlo-7>

**Bertram Duering** was invited to talk at the workshop "*New Challenges in Energy Markets - Data Analytics, Modelling and Numerics*" at Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Banff, Canada (26/09/19).

**Iacopo Vivarelli** delivered 3 off-campus talks:

1. "Characterisation of optical fibres for Dream2 calorimeter" (Pavia, 10/09/19).
2. "Supersymmetry in ATLAS - Research strategy" (Lecce, 23/09/19).
3. "Review of 3rd generation SUSY searches in ATLAS" (Lecce, 26/09/19).

**Omar Lakkis** attended 2 mini-symposium talks at the European Numerical Mathematics and Applications conference. He also delivered a lecture at ICMS in Edinburgh.

**Ali Taheri** was a guest lecturer and speaker at the following talks:

1. Distinguished Guest Lecture: Amity University, Gurgaon, India, 18 September 2019. "On multi-dimensional Calculus of Variations: The mysteries of Quasiconvexity".
2. Mathematics Colloquium Speaker: University of Delhi, 17 September 2019. "The Funk-Hecke formula on Lie Groups and Symmetric Spaces".
3. Guest Lecture: Poornima College of Engineering, Jaipur, India, 16 September 2019. "Trends in infinite dimensional optimisation: microstructure and shape memory".
4. Keynote Speaker: International Conference on Recent Developments in Science, Engineering and Technology, Anand ICE, Jaipur, India, 14-15 September 2019. "Variational Models in Mechanics and Material Sciences: From Quasiconvexity to Microstructure".
5. Guest Lecture, Harish-Chandra Research Institute, Allahabad, India, September 2019. "Spectral zetas and a new proportionality principle for Riemannian symmetric space"s.

## Impact

No news reported in this area.

## Significant Research Outcomes

**Roger Fenn** has received acceptance of a paper in the respectable journal *Pacific Journal of Mathematics* after waiting a year! Described as an important and valuable contribution to the area.

**Omar Lakkis** has discovered a new adaptive algorithm for the solution of elliptic equations in nondivergence form. (Paper on ArXiv and submitted to journal).

**Anastasia Fialkov** and Fuzzy DM published paper:

<https://journals.aps.org/prl/pdf/10.1103/PhysRevLett.123.141301>.

## Other news

**Jonathan Loveday** was a participant in 4MOST all-hands meeting in Potsdam, 16-20<sup>th</sup> September.

**Paul Giles** is now Cluster WG co-chair for DES.

**University of Sussex**

*Meet the quantum summer students* – “Over the summer the Quantum Systems and Devices laboratory has been bustling with A-Level and undergraduate summer students working on a range of exciting projects” (<http://www.sussex.ac.uk/staff/newsandevents/?id=49648>).

**University of Sussex**

*Laying the Foundations of excellence for three decades* – “This autumn sees the thirtieth anniversary of our first intake of Foundation Year students. A tremendously important initiative for widening access to Higher Education to students of all backgrounds” (<http://www.sussex.ac.uk/staff/newsandevents/?id=49681>).

**Omar Lakkis** welcomed two new PhD students:

- . Alex Skouras who is going to work on computational mathematics models in lithium battery ageing and deterioration.
- . Sandra Dumitrescu who is going to work on computational mathematics models in flood-risk assessment.

(These titles are provisional; as their research progresses they will be defining more precise titles).

## Grant Report

### Submitted

Boland, Conor	European Union	H2020 - Marie Curie Individual Fellowships: European Fellowship	SBMCF: Optimising Electromechanical Performances of Nanocomposites for Future Real-Time Health Monitors	141,522
Dalton, Alan	EPSRC	EPSRC Decarbonising Heating and Cooling	Renewable thermal energy technologies based on layered nanomaterials	675,302
Hazard, Pierre-Henry	European Union	H2020 - Marie Curie Individual Fellowships: European Fellowship	TACTIC - TowArds ultrafast deteCTION of cavity-solitons microCombs	168,994
Lakkis, Omar	NERC	NERC Landscape Decisions Maths Small Grants 2019	Natural and human land-cover induced roughness on surface water flows in hydrological risk assessment: a data-driven mathematical modelling approach	297,242
Litim, Daniel	European Union	H2020 - Marie Curie Individual Fellowships: European Fellowship	New directions for quantum gravity (tbc) (Fellow: External Applicant)	168,994
Madzvamuse, Anotida	NERC	NERC Landscape Decisions Maths Small Grants 2019	NOVA ForMa: Next generation forest management with data-driven modelling and optimised learning algorithms	245,889
Melgaard, Michael	Royal Society	RSOC International Exchanges Scheme	Carleman estimates for nonlocal differential operators with applications to density functional theory	12,000
Peccianti, Marco	European Union	H2020 - Marie Curie Individual Fellowships: European Fellowship	Nanostructured Terahertz Active Surface (NATIVE)	168,998
Shaw, Kate	Royal Society	RSOC University Research Fellowship	Pushing the boundaries of knowledge and technology, and curiosity and imagination to	623,699

			understand our place in the universe (External)	
Shaw, Kate	STFC	STFC Ernest Rutherford Fellowship	Rousing the monsters: elucidating the critical role of AGN in cluster cosmology	509,641
Smith, Robert	Royal Society	RSOC University Research Fellowship	Fundamental Physics from Galaxy Surveys	601,449
Thomas, Peter	STC	STFC Ernest Rutherford Fellowship	Underpinning Precision Cosmology with Clusters of Galaxies	511,081
Verdu, Jose	European Union	H2020 - FET Open	MASQALO - MASs QuAntum metroLOgy in chip-scale traps	427,199
Vivarelli, Iacopo	Royal Society	RSOC University Research Fellowship	Consolidating the top-Higgs sectors to determine the fate of the Universe (Fellow:External Applicant)	618,199

### Awarded

Pasquazi, Alessia	European Union	H2020 - ERC Starting Grant	TeLSCombe - Temporal Laser cavity-Solitons for micro-resonator based optical frequency combs	1,195,746
Peccianti, Marco	European Union	H2020 - ERC Proof of Concept	THINK - THINK: TeraHertz emitting INK	122,244

<b>Department of Mathematics. Publications deposited in SRO during September 2019</b>					
<b>To view the publication, enter the five-digit SRO ID number as <a href="http://sro.sussex.ac.uk/nnnnn">http://sro.sussex.ac.uk/nnnnn</a></b>					
<b>Sussex Author</b>	<b>SRO ID</b>	<b>Status</b>	<b>Author(s)</b>	<b>Output Title</b>	<b>Volume Title</b>
Chlebik, Miroslav	86319	Published	Chlebík, Miroslav; Chlebíková, Janka. Editor(s): Du, D Z; Duan, Z; Tian, C	Approximation hardness of Travelling Salesman via weighted amplifiers	Lecture Notes in Computer Science, Springer , Cham, Switzerland

Department of Physics. Publications deposited in SRO during September 2019					
To view the publication, enter the five-digit SRO ID number as <a href="http://sro.sussex.ac.uk/nnnnn">http://sro.sussex.ac.uk/nnnnn</a>					
Sussex Author	SRO ID	Status	Author(s)	Output Title	Volume Title
Abraham, Nicola L	<a href="#">85579</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Grandi, M; Jones, S D; Salvatore, F; De Santo, A; Shaw, K; Spina, M; and 8 other(s)	Measurement of $VH, H \rightarrow b \bar{b}$ production as a function of the vector-boson transverse momentum in 13 TeV pp collisions with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85622</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 5 other(s)	Search for heavy Majorana or Dirac neutrinos and right-handed W gauge bosons in final states with two charged leptons and two jets at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85623</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Suruliz, K; Stevenson, T J; and 6 other(s)	Search for doubly charged scalar bosons decaying into same-sign W boson pairs with the ATLAS detector	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85624</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 5 other(s)	Measurements of inclusive and differential fiducial cross-sections of tt production with additional heavy-flavour jets in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85626</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the azimuthal anisotropy of charged particles produced in $\sqrt{s_{NN}} = 5.02$ TeV Pb+Pb collisions with the ATLAS detector	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85630</a>	Published	Allbrooke, B M M; Abraham, N L; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 5 other(s)	Search for single production of vector-like quarks decaying into Wb in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85632</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurements of differential cross sections of top quark pair production in association with jets in pp collisions at $\sqrt{s}=13$ TeV using the ATLAS detector	Journal of High Energy Physics



Abraham, Nicola L	<a href="#">85744</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Lerner, G; and 5 other(s)	Angular analysis of $B_d^0 \rightarrow K^* \mu^+ \mu^-$ decays in pp collisions at $\sqrt{s}=8\text{TeV}$ with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85745</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Suruliz, K; and 6 other(s)	Performance of missing transverse momentum reconstruction with the ATLAS detector using proton–proton collisions at $\sqrt{s} = 13\text{ TeV}$	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85776</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; Sutton, M R; and 2 other(s)	Measurement of the nuclear modification factor for inclusive jets in Pb+Pb collisions at $\sqrt{s_{NN}}=5.02\text{ TeV}$ with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85777</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for lepton-flavor violation in different-flavor, high-mass final states in pp collisions at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85780</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for invisible Higgs boson decays in vector boson fusion at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85782</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, Lily; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for heavy particles decaying into a top-quark pair in the fully hadronic final state in pp collisions at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85783</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Comparison between simulated and observed LHC beam backgrounds in the ATLAS experiment at $E_{\text{beam}} = 4\text{ TeV}$	Journal of Instrumentation
Abraham, Nicola L	<a href="#">85784</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for four-top-quark production in the single-lepton and opposite-sign dilepton final states in pp collisions at $\sqrt{s} = 13\text{ TeV}$ with the ATLAS detector	Physical Review D

Abraham, Nicola L	<a href="#">85785</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for long-lived particles in final states with displaced dimuon vertices in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85786</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for light resonances decaying to boosted quark pairs and produced in association with a photon or a jet in proton–proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85787</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Suruliz, K; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; and 6 other(s)	Search for heavy long-lived multicharged particles in proton-proton collisions at $\sqrt{s}=13$ TeV using the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85789</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	A strategy for a general search for new phenomena using data-derived signal regions and its application within the ATLAS experiment	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85791</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the four-lepton invariant mass spectrum in 13 TeV proton-proton collisions with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85793</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 7 other(s)	Search for Higgs boson pair production in the $b\bar{b}^*WW^*$ decay mode at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85794</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, Samuel; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for large missing transverse momentum in association with one top-quark in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85795</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for pairs of highly collimated photon-jets in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D

Abraham, Nicola L	<a href="#">85796</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for Higgs boson pair production in the $bb$ final state with 13TeV pp collision data collected by the ATLAS experiment	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85798</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the $Z\gamma\gamma$ production cross section in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector and limits on anomalous triple gauge-boson couplings	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85799</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for the production of a long-lived neutral particle decaying within the ATLAS hadronic calorimeter in association with a Z boson from pp collisions at $\sqrt{s}=13$ TeV	Physical Review Letters
Abraham, Nicola L	<a href="#">85800</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for Higgs boson pair production in the $\gamma\gamma WW^*$ channel using pp collision data recorded at $\sqrt{s}=13$ TeV with the ATLAS detector	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85802</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for Higgs boson decays into a pair of light bosons in the $bb\mu\mu$ final state in pp collision at $\sqrt{s}=13$ TeV with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85803</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 7 other(s)	Search for charged Higgs bosons decaying into top and bottom quarks at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85804</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for dark matter in events with a hadronically decaying vector boson and missing transverse momentum in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85806</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for heavy charged long-lived particles in the ATLAS detector in 36.1 fb <sup>-1</sup> of proton-proton collision data at $\sqrt{s}=13$ TeV	Physical Review D

Abraham, Nicola L	<a href="#">85884</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for vector-boson resonances decaying to a top quark and bottom quark in the lepton plus jets final state in pp collisions at $\sqrt{s}=13\text{TeV}$ with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85885</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, Samuel; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurements of gluon-gluon fusion and vector-boson fusion Higgs boson production cross-sections in the $H \rightarrow WW^* \rightarrow e \mu$ decay channel in pp collisions at $\sqrt{s}=13\text{TeV}$ with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85886</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Suruliz, K; Sutton, M R; and 5 other(s)	Measurement of dijet azimuthal decorrelations in pp collisions at $\sqrt{s}=8\text{TeV}$ with the ATLAS detector and determination of the strong coupling	Physical Review D
Abraham, Nicola L	<a href="#">85892</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; Sutton, M R; and 6 other(s)	Modelling radiation damage to pixel sensors in the ATLAS detector	Journal of Instrumentation
Abraham, Nicola L	<a href="#">85893</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Constraints on off-shell Higgs boson production and the Higgs boson total width in $ZZ^* \rightarrow 4\ell$ and $ZZ^* \rightarrow 2\ell 2\gamma$ final states with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85894</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Combinations of single-top-quark production cross-section measurements and $ f_{LVVtb} $ determinations at $\sqrt{s} = 7$ and $8\text{TeV}$ with the ATLAS and CMS experiments	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85895</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 5 other(s)	Measurement of the suppression and azimuthal anisotropy of muons from heavy-flavor decays in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76\text{TeV}$ with the ATLAS detector	Physical Review C
Abraham, Nicola L	<a href="#">85896</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of $W \pm Z$ production cross sections and gauge boson polarisation in pp collisions at $\sqrt{s} = 13\text{TeV}$ with the ATLAS detector	European Physical Journal C - Particles and Fields

Abraham, Nicola L	<a href="#">85899</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the $t\bar{t}Z$ and $t\bar{t}W$ cross sections in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85901</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for chargino-neutralino production using recursive jigsaw reconstruction in final states with two or three charged leptons in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85903</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, Samuel; Stevenson, T J; Salvatore, F; De Santo, A; Shaw, K; Suruliz, K; and 6 other(s)	Search for Higgs boson pair production in the $WW^{(*)}WW^{(*)}$ decay channel using ATLAS data recorded at $\sqrt{s}=13$ TeV	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85904</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Constraints on mediator-based dark matter and scalar dark energy models using $\sqrt{s}=13$ TeV pp collision data collected by the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85905</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Properties of $g\bar{b}b$ at small opening angles in pp collisions with the ATLAS detector at $\sqrt{s}=13$ TeV	Physical Review D
Abraham, Nicola L	<a href="#">85911</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurements of inclusive and differential fiducial cross-sections of $t\bar{t}$ production in leptonic final states at $\sqrt{s}=13$ TeV in ATLAS	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85912</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for pair production of Higgsinos in final states with at least three b-tagged jets in $\sqrt{s}=13$ TeV pp collisions using the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85913</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for pair and single production of vectorlike quarks in final states with at least one Z boson decaying into a pair of electrons or muons in pp collision data collected with the ATLAS detector at $\sqrt{s}=13$ TeV	Physical Review D

Abraham, Nicola L	<a href="#">85914</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for low-mass resonances decaying into two jets and produced in association with a photon using pp collisions at $\sqrt{s}=13\text{TeV}$ with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85915</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of photon–jet transverse momentum correlations in 5.02TeV Pb+Pb and pp collisions with ATLAS	Physics Letters B
Abraham, Nicola L	<a href="#">85916</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Prompt and non-prompt $J/\psi$ and $\psi(2S)$ suppression at high transverse momentum in 5.02 TeV Pb+Pb collisions with the ATLAS experiment	European Physical Journal C - Particles and Fields
Abraham, Nicola L	<a href="#">85917</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Jones, S D; Suruliz, K; and 6 other(s)	Search for lepton-flavor-violating decays of the Z boson into a $\tau$ lepton and a light lepton with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85918</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; DeSanto, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the ratio of cross sections for inclusive isolated-photon production in pp collisions at $\sqrt{s} = 13$ and 8 TeV with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85919</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 5 other(s)	Search for pair production of heavy vectorlike quarks decaying into hadronic final states in pp collisions at $\sqrt{s}=13\text{TeV}$ with the ATLAS detector	Physical Review D
Abraham, Nicola L	<a href="#">85920</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for long-lived particles produced in pp collisions at $\sqrt{s}=13\text{TeV}$ that decay into displaced hadronic jets in the ATLAS muon spectrometer	Physical Review D
Abraham, Nicola L	<a href="#">85921</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the photon identification efficiencies with the ATLAS detector using LHC Run 2 data collected in 2015 and 2016	European Physical Journal C: Particles and Fields

Abraham, Nicola L	<a href="#">85922</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Combination of the searches for pair-produced vectorlike partners of the third-generation quarks at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector	Physical Review Letters
Abraham, Nicola L	<a href="#">85923</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Observation of centrality-dependent acoplanarity for muon pairs produced via two-photon scattering in Pb+Pb collisions at $\sqrt{s_{NN}}=5.02\text{ TeV}$ with the ATLAS detector	Physical Review Letters
Abraham, Nicola L	<a href="#">85924</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Correlated long-range mixed-harmonic fluctuations measured in pp, p+Pb and low-multiplicity Pb+Pb collisions with the ATLAS detector	Physics Letters B
Abraham, Nicola L	<a href="#">85925</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Study of the rare decays of $B_s^0$ and $B^0$ mesons into muon pairs using data collected during 2015 and 2016 with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85926</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the top quark mass in the $t\bar{t} \rightarrow \ell^+\ell^- + \text{jets}$ channel from $\sqrt{s}=8\text{ TeV}$ ATLAS data and combination with previous results	European Physical Journal C: Particles and Fields
Abraham, Nicola L	<a href="#">85927</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Electron and photon energy calibration with the ATLAS detector using 2015–2016 LHC proton-proton collision data	Journal of Instrumentation
Abraham, Nicola L	<a href="#">85928</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for pair production of up-type vector-like quarks and for four-top-quark events in final states with multiple b-jets with the ATLAS detector	Journal of High Energy Physics
Abraham, Nicola L	<a href="#">85929</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Search for the Higgs boson produced in association with a vector boson and decaying into two spin-zero particles in the $H \rightarrow a\bar{a} \rightarrow 4b$ channel in pp collisions at $\sqrt{s}=13\text{ TeV}$ with the ATLAS detector	Journal of High Energy Physics

Abraham, Nicola L	<a href="#">85930</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Jones, S D; De Santo, A; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Performance of top-quark and W -boson tagging with ATLAS in Run 2 of the LHC	European Physical Journal C - Particles and Fields
Allbrooke, Benedict MM	<a href="#">85745</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Suruliz, K; and 6 other(s)	Performance of missing transverse momentum reconstruction with the ATLAS detector using proton–proton collisions at $\sqrt{s} = 13$ TeV	European Physical Journal C: Particles and Fields
Allbrooke, Benedict MM	<a href="#">85791</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Stevenson, T J; Suruliz, K; and 6 other(s)	Measurement of the four-lepton invariant mass spectrum in 13 TeV proton-proton collisions with the ATLAS detector	Journal of High Energy Physics
Banfi, Andrea	<a href="#">85949</a>	Published	Arpino, Luke; Banfi, Andrea; Jäger, Sebastian; Kauer, Nikolas (2019)	BSM W W production with a jet veto	Journal of High Energy Physics
Bhargava, Sunayana	<a href="#">85708</a>	Published	Zhang, Y; Jeltama, T; Hollowood, D L; Everett, S; Rozo, E; Farahi, A; Bermeo, A; Bhargava, S; Giles, P; Romer, A K; and 5 other(s)	Dark Energy Surveyed Year 1 results: calibration of cluster mis-centring in the redMaPPer catalogues	Monthly Notices of the Royal Astronomical Society
Calmet, Xavier	<a href="#">85900</a>	Accepted	Calmet, Xavier; Shaw, Nathaniel Wiesendanger	An analytical perturbative solution to the Merton Garman model using symmetries	Journal of Futures Markets
Carron, Julien	<a href="#">85704</a>	Accepted	Carron, Julien; Lewis, Antony; the Plank Collaboration	Planck 2018 results. VIII. Gravitational lensing	Astronomy and Astrophysics
Giles, Paul A	<a href="#">85742</a>	Published	Klein, M; Grandis, S; Mohr, J J; Paulus, M; Giles, P A; Romer, A K; DES Collaboration, others	A new RASS galaxy cluster catalogue with low contamination extending to $z \sim 1$ in the DES overlap region	Monthly Notices of the Royal Astronomical Society



Irodotou, Dimitrios	<a href="#">85743</a>	Accepted	Irodotou, Dimitrios; Thomas, Peter A; Henriques, Bruno M; Sargent, Mark T; Hislop, Jessica M	Morphological evolution and galactic sizes in the L-Galaxies SA model	Monthly Notices of the Royal Astronomical Society
Mondal, Rajesh	<a href="#">85978</a>	Published	Shaw, Abinash Kumar; Bhardwaj, Somnath; Mondal, Rajesh	The impact of non-Gaussianity on the error covariance for observations of the Epoch of Reionization 21-cm power spectrum	Monthly Notices of the Royal Astronomical Society
Mondal, Rajesh	<a href="#">85979</a>	Published	Bag, Satadru; Mondal, Rajesh; Sarkar, Prakash; Bharadwaj, Somnath; Choudhry, Tirthankar Roy; Sahni, Varun	Studying the morphology of HI isodensity surfaces during reionization using Shapefinders and percolation analysis	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85590</a>	Published	Pollina, G; Hamaus, N; Paech, K; Dolag, K; Weller, J; Sanchez, C; Rykoff, E S; Jain, B; Romer, A K; DES Collaboration	On the relative bias of void tracers in the Dark Energy Survey	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85687</a>	Published	Zhang, Y; Miller, C J; Rooney, P; Bermeo, A; Romer, A K; Vergara Cervantes, C; Rykoff, E S; Hennig, C; Das, R; McKay, T; and 4 other(s)	Galaxies in X-ray selected clusters and groups in Dark Energy Survey data – II. Hierarchical Bayesian modelling of the red-sequence galaxy luminosity function	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85702</a>	Published	Camacho, H; Kokron, N; Andrade-Oliveira, F; Rosenfeld, R; Lima, M; Lacasa, F; Sobreira, F; da Costa, L N; Avila, S; Chan, K C; and 6 other(s)	Dark Energy Survey Year 1 results: measurement of the galaxy angular power spectrum	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85703</a>	Published	Hoorman, J K; Martini, P; Davis, T M; King, A; Lidman, C; Mudd, D; Sharp, R; Sommer, N E; Tucker, B E; Yu, Z; and 2 other(s)	C IV black hole mass measurements with the Australian Dark Energy Survey (OzDES)	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85711</a>	Published	Angus, C R; Smith, M; Sullivan, M; Inserra, C; Wiseman, P; D'Andrea, C B; Thomas, B P; Nichol, R C; Galbany, L; Childress, M; and 2 other(s)	Superluminous supernovae from the Dark Energy Survey	Monthly Notices of the Royal Astronomical Society

Romer, Kathy K	<a href="#">85739</a>	Published	Prat, J; Baxter, E; Shin, T; Sanchez, C; Chang, C; Jain, B; Miquel, R; Romer, A K; DES Collaboration, SPT Collaboration, others	Cosmological lensing ratios with DES Y1, SPT, and Planck	Monthly Notices of the Royal Astronomical Society
Romer, Kathy K	<a href="#">85741</a>	Published	Macaulay, E; Nichol, R C; Bacon, D; Brout, D; Davis, T M; Zhang, B; Bassett, B A; Scolnic, D; Moller, A; D'Andrea, C B; and 10 other(s)	First cosmological results using Type Ia supernovae from the Dark Energy Survey: measurement of the Hubble constant	Monthly Notices of the Royal Astronomical Society
Salvatore, Fabrizio F	<a href="#">85744</a>	Published	Abraham, N L; Allbrooke, B M M; Asquith, L; Cerri, A; Chavez Barajas, C A; De Santo, A; Jones, S D; Salvatore, F; Shaw, K; Lerner, G; and 5 other(s)	Angular analysis of $B_d^0 \rightarrow K^* \mu^+ \mu^-$ decays in pp collisions at $\sqrt{s}=8\text{TeV}$ with the ATLAS detector	Journal of High Energy Physics
Sargent, Mark	<a href="#">86014</a>	Published	Vardoulaki, E; Jiminez Andrade, E F; Karim, A; Novak, M; Leslie, S K; Tisanic, K; Smolcic, V; Schinnerer, E; Sargent, M T; Bondi, M; and 1 other(s)	A closer look at the deep radio sky: multi-component radio sources at 3-GHz VLA-COSMOS	Astronomy & Astrophysics
Sargent, Mark	<a href="#">86015</a>	Accepted	Coogan, Rosemary; Sargent, Mark	Sunyaev-Zel'dovich detection of the galaxy cluster Cl J1449+0856 at $z = 1.99$ : the pressure profile in uv space	Astronomy & Astrophysics
Sargent, Mark	<a href="#">86018</a>	Published	Lamperti, Isabella; Saintonge, Amelie; De Looze, Ilse; Accurso, Gioacchino; Clark, Christopher J R; Smith, Matthew W L; Wilson, Christine D; Sargent, Mark; others,	JINGLE V: Dust properties of nearby galaxies derived from hierarchical Bayesian SED fitting	Monthly Notices of The Royal Astronomical Society
Vergara Cervantes, Carlos Fernando F	<a href="#">85687</a>	Published	Zhang, Y; Miller, C J; Rooney, P; Bermeo, A; Romer, A K; Vergara Cervantes, C; Rykoff, E S; Hennig, C; Das, R; McKay, T; and 4 other(s)	Galaxies in X-ray selected clusters and groups in Dark Energy Survey data – II. Hierarchical Bayesian modelling of the red-sequence galaxy luminosity function	Monthly Notices of the Royal Astronomical Society