**Research and Knowledge Exchange Committee**

**Second Report on School Research Activity for 2016/17**

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| **School**:  | Mathematical & Physical Sciences |

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| **Part 1: Research output**  |  |  |  |  |
|  |  |  | **2016 total** | **2017 to date** |
| Peer-reviewed | Authored book | 2 | 0 |
|  | Chapters | 3 | 0 |
|  | Journal article | 285 | 21 |
|  | Edited book | 1 | 0 |
|  | Conference contribution | 6 | 0 |
|  | Monograph | 0 | 0 |
|  | Other | 17 | 0 |
| **Total** |  | 314 | 21 |
|  |  |  | **Number** |  |
| Non peer-reviewed (where known) | Books | 0 | 0 |
|  | Chapters | 0 | 0 |
|  | Articles | 0 | 0 |
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|  | Book reviews | 0 | 0 |
|  |  |  | **Number** | **0** |
| Conferences hosted |  | 8 | 0 |

**Part 2: Activity during the period 01 Oct 2016 to 31 Jan 2017**

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| Research related appointments: | Promotions:

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| Dunningham, Jacob A | Professor of Physics |
| Romer, Anita K | Professor of Astrophysics |

New appointments arrived, but not on Dashboard |
| Details of key research grants received (i.e. in top decile of all research grants received over last 3 academic years): | **All Grants awarded in the period 01.10.16 to 31.01.17**Dr Nicos Georgiou (Mathematics). EPSRC First Grant. £100,540.The flat edge in last passage percolation. Prof Enrico Scalas (Mathematics). VOPA –Volatility markets and Agricultural Production.CONSIGLIO NAZIONALE DELLE RICERCHE. £14,157.Prof Peter A Thomas (Physics).Astronomy Consolidated Grant 2017-2020. STFC. £834,303.Dr Stephan J Huber (Physics).South-Eastern Particle Theory Alliance Sussex - RHUL – UCL 2017-2020 -Sussex node. STFC EPP Consolidated Grant. £603,413.Dr Pasquale F Salvatore (Physics).GridPP5 Sussex tranche 1 h/w grant. STFC. £10,000. |
|  | Total (£): | ~£1.5M |

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| Highlighted awards and recognitions: | Dr Ilian Iliev was appointed to the STFC PPRP Grant Panel for 2017-2020.  |
| Highlighted areas of Knowledge Exchange: | **Economic Impact****Mathematics**Dr Istvan Kiss has been awarded £5,000.00 from the 7th round of the RDF to work with a well-known insurance company (NDA applies).**Commercialization of a nanosecond light pulser system (S. Peters)**Funding agreed and the first customer has been found. JSNS: Japanese anti-neutrino experiment at the JPARC national lab spallation source.**Established Data Intensive Science at University of Sussex (DISCUS**) as a Research group covering activities in Astronomy, Particle Physics and Mathematics with a strong “Impact” agenda**STFC IAA (Impact Acceleration Account)**The University also has a new STFC IAA (Impact Acceleration Account) of £50,000 which will support early stage initiatives towards social and economic impact that build upon STFC-funded research. **Public Engagement…****Student Expo which is where our students present posters on their SEPnet summer placements in London. 68 employers attended the event in November 2016**P & A have won two awards from STFC for Outreach work:* Dr Darren Baskill will be working on his project ‘The Ensonglopedia of Science’ from now until February 2017.
* Dr Stephen Wilkins will be working on the project ‘Lewes Sciences, Technology, Engineering and Maths (STEM) Festival 2017’ from January-April 2017.

[www.sussex.ac.uk/physics/about/newsandevents?id=36968](http://www.sussex.ac.uk/physics/about/newsandevents?id=36968)**Astronomy Centre**Public talk at West Hill Community Association, October 2016 (evening event for ~30 members of the public): featured research carried out by Christian Byrnes (Early Universe)Sussex Universe Lecture, September 2016 (evening event for ~100 members of the public): featured research carried out by Stephen Wilkins (Dark Ages)Article in Scientific Computing World, October 2016 (popular science magazine): featured research carried out by Ilian Iliev (HPC)Sussex Research Spotlight, November 2016:  featured research carried out by Jillian Scudder (Research Fellow in Seb Oliver’s group)Astronomy Master Class, December 2016 (an all day event for ~100 GCSE and ~100 A'level pupils): featured research carried out by Kathy Romer (Dark Energy Survey), Stephen Wilkins (High redshift Universe) and Mark Sargent (far-infrared)Star Gazing Live: Schools, January 2017 (4 hour daytime event for ~120 Y7/8 pupils): featured research carried out by Kathy Romer (Dark Energy Survey)Star Gazing Live: Public, January 2017 (4 hour evening event for ~600 members of the public): featured research carried out by Kathy Romer (Dark Energy Survey), Seb Oliver (infrared), PDRA Jillian Scudder (galaxy evolution), Peter Thomas (numerical simulations).Schools Lab, January 2017: featured research carried out by Mark Sargent (High redshift Universe)Dr Stephen Wilkins and Dr Mark Sargent – provided our deepest view of the Universe. [www.sussex.ac.uk/staff/newsandevents/?id=37110](http://www.sussex.ac.uk/staff/newsandevents/?id=37110)**Quantum Technology**Schools Lab, October 2016: featured research carried out by Claudia Eberlein (Quantum Vacuum)Sussex Universe Lecture, October 2016: featured research carried out by Winfried Hensinger (Quantum Computing)Sussex Universe Lecture, October 2016: featured research carried out by Matthias Keller (Spectroscopy)Prof Winni Hensinger (Sussex Ion Quantum Technology group) was interviewed for Radio 4’s Today programme, the World Service’s [www.sussex.ac.uk/staff/newsandevents/?id=38093](http://www.sussex.ac.uk/staff/newsandevents/?id=38093)[www.sussex.ac.uk/staff/newsandevents/?id=38087](http://www.sussex.ac.uk/staff/newsandevents/?id=38087)Sussex Research Spotlight, Dr Seb Weidt (Research Fellow in the Ion Quantum Technology group) [www.sussex.ac.uk/staff/research/researchstaff/spotlight/drsebastianweidtspotlight](http://www.sussex.ac.uk/staff/research/researchstaff/spotlight/drsebastianweidtspotlight)1st February: Extensive media coverage of Blueprint for Quantum Computer work from Prof. Winni Hensinger’s group**Experimental Particle**Participation in parliamentary and science committee discussion sessions at House of Commons (monthly, on going) by Lily AsquithSNOLAB exhibition:  featured research carried out by Simon PeetersSchool talk at CNCS, Hove, January 2017: featured research carried out by Fabrizio Salvatore and Antonella De SantoHiSPARC research in school at CNCS, Hove (on going): features research carried out by Fabrizio Salvatore and Antonella De Santo**Theoretical Particle**Star Gazing Live: Public, January 2017 (4 hour evening event for ~600 members of the public): featured research carried out by Mark Hindmarsh (Early Universe)School talk at Charterhouse, January 2017 (~15 Y11 pupils), featured research carried out by Veronica Sanz |
| Key activities (not covered by the above categories): | **Partnership Building**Dr Istvan Kiss, accompanied by Dr Konstantin Blyuss and Dr Luc Berthouze (EngInf), visited the Emergency Response Department Science and Technology, Health Protection and Medical Directorate at Public Health England, Porton Down, Salisbury to explore collaborative partnerships.**Important Research Outputs**Dr Antony Lewis presented the first detection of CMB polarization delensing (in <https://arxiv.org/abs/1701.01712> )Dr Ilian Iliev submitted a paper on the first results from the LOFAR Epoch of Reionization Key Science Project (Patil, A.H., et al. ``Upper Limits on the 21-cm Epoch of Reionization Power Spectrum from One Night with LOFAR'', 2016, A&A, submitted).Dr Istvan Kiss published his book “Mathematics of Epidemics on Networks”. The book will be available soon, and currently visible on-line at <http://www.springer.com/la/book/9783319508047>**Highlighted talks**Dr Istvan Kiss will be a plenary speaker at Eighth Workshop Dynamical Systems Applied to Biology and Natural Sciences, DSABNS, Jan. 31 - Feb. 3, 2017 at Colégio do Espírito Santo, Universidade de Évora, Portugal.Prof Enrico Scalas, Head of Department, is an invited speaker at a workshop on *Future Directions in Fractional Calculus Research and Applications* at Michigan State University (17-22 October) <https://stt.msu.edu/FCworkshop> |
| Any other issues: |  |
| Bullet point key activities to be reported to Senate (maximum of 4): | Dr Nicos Georgiou (Mathematics). EPSRC First Grant. £100,540.The flat edge in last passage percolation. Grants from STFC in Theoretical Particle Physics and Astrophysics awarded at £1.4MProf Winni Hensinger (Sussex Ion Quantum Technology group) was interviewed for Radio 4’s Today programme and had extensive media coverage of their work on Blueprint for Quantum Computer work 1st February |

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| Name: | Seb Oliver | School: | MPS |
|  |  | Date: | 1 Feb 2017 |