

Research and Knowledge Exchange Committee

Second Report on School Research Activity for 2017/18

October 2017 to January 2018 inclusive.

School:	Mathematical & Physical Sciences
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Part 1: Research output

		2017 total	2018 to date
Peer-reviewed	Authored book	1	1
	Chapters	7	1
	Journal article	225	22
	Edited book	0	0
	Conference contribution	5	1
	Monograph	0	0
	Other	0	0
Total		238	25
		Number	
Non peer-reviewed (where known)	Authored Books	1	0
	Chapters	4	0
	Journal article	0	0
	Other	1	1
	Book reviews	0	0
		Number	
Conferences hosted		7	2
4* Publications produced		25 **	0

** a further 6 rated 3*/4*

Part 2: Activity during the period 01 Oct 2017 to 31 Jan 2018

Research related appointments:	<p>New staff:</p> <p>Dr Sara Merino Aceituno (Dept Mathematics)</p> <p>Dr Nick Simm (Dept Mathematics)</p> <p>Promotions to Professor:</p> <p>Prof Jeff Hartnell</p> <p>Prof Matthias Keller</p> <p>Prof Istvan Kiss</p> <p>Prof Veronica Sanz</p> <p>New Postdoctoral Researchers:</p> <p>Dr N Gemmell (Prof M Keller)</p> <p>Dr P Giles (Prof K Romer)</p> <p>Dr S Hile (Dr W Hensinger)</p> <p>Dr X Li (Prof P Krueger)</p> <p>Dr P Lynch (Prof A Dalton)</p> <p>Dr R Mondal (Dr I Iliev)</p> <p>Dr T Navickas (Prof W Hensinger)</p> <p>Dr Y Rong (Prof A Dalton)</p> <p>Dr R Roy (Prof P Krueger)</p> <p>Dr B Safarzaden Samani (Prof A De Santo)</p> <p>Dr M Tripathi (Prof A Dalton)</p>
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Details of key research grants received (i.e. in top decile of all research grants received over last 3 academic years):	<p>Physics: Dr Stephan Huber (PI). South-Eastern Particle Theory Alliance Sussex - RHUL - UCL 2017-2020 - Sussex node. Start date 01 October 2017. Awarded £603413.</p> <p>Maths: No grants above the 3-year top decile.</p>		
<table> <tr> <td>Total (£):</td><td>603413</td></tr> </table>		Total (£):	603413
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Highlighted awards and recognitions:	<p>Bertram Duering is the Co-Investigator of a successful application for an Alan Turing Institute Workshop grant (£4000). This provides additional funding for the workshop 'Gradient flows: challenges and new directions' to be held in September 2018 at the International Centre for Mathematical Sciences (ICMS), Edinburgh. Bertram is also a co-organiser of the workshop (grants are not held at Sussex, but directly at ICMS)</p> <p>Barry Garraway received special recognition from the CEO of EPSRC for his significant contribution to the EPSRC Peer Review. EPSRC drew this to the attention of the PVC for Research at Sussex.</p>
Highlighted areas of Knowledge Exchange:	<p>Max Jensen: The Knowledge Transfer Network (KTN) ran a study group 8 -10 January 2018. Links were set up with key UK academics working in the area of Energy Storage. Two of the three groups had Sussex leads. Follow-up events are expected with some of the high profile industrial partners.</p> <p>SEPnet Public Engagement Awards (Winfried Hensinger) Winni Hensinger was highly commended at the Communication Award of the SEPnet Public Engagement Awards for last summer's pop-up laboratory on quantum computing which appeared in Spitalfields market. Winni and his team were shortlisted for the trophy and Winni gave a presentation at the ceremony.</p>
Key activities (not covered by the above categories):	<p>Graphene emulsions for strain sensing (Alan Dalton) Nanoscale paper published in January on utilizing emulsions of graphene for strain sensing was picked up by national (Daily Mail, Telegraph) and international outlets (The Engineer, The Indian Express, Yahoo! News); now the highest ranked article on Altmetric from Nanoscale (out of 2533 articles) of all time. A comprehensive list of media uptake can be found here: https://rsc.altmetric.com/details/31449259</p> <p>Both ITV Meridian and BBC South East filmed in the lab on development of liquid-based graphene health monitor sensors including Dr Matt Large being interviewed. These segments appeared in the evening news broadcast. The media files can be found on the Materials group website.</p> <p>Dark Energy Survey data release (Kathy Romer and colleagues) Kathy Romer and colleagues have released the first three years' data from the Dark Energy Survey to the public, including details of stellar streams. Kathy's idea to engage Chilean schoolchildren in giving new names to the streams of stars was successful.</p>

<p>Bullet point key activities to be reported to Senate (maximum of 4):</p>	<p>At the National Quantum Showcase, three research groups exhibited quantum technology demonstrations. Winni Hensinger's IQT group showed an authentic model of the quantum computer prototype published earlier in blueprint form. A second exhibit was a model of a portable magnetic field sensor. Matthias Keller's ITCM group exhibited the prototype for an atomic clock and a novel quantum networking interface. Peter Krueger's Quantum Sensing and Ultracold Gases group showed their developing technology using magnetometry for brain imaging.</p> <p>Chris Byrnes: I spent 4 days on a Royal Society shadowing scheme, following Dr Lucy Mason who leads a group in the Defence and Security Laboratory, Porton Down and spending 2 days in Westminster interacting with MPs/Lords and policy makers.</p> <p>James Waterfield: James Waterfield started the RSE/STFC Enterprise Fellowship (October 17 to Sept 18)</p> <p>Luiz Vale Silva: Identification of a possibly important sensitivity of radiative muon decays into electrons for a certain class of dimension six New Physics operators</p> <p>Alan Dalton: Heads of Terms have been signed with Advanced Materials Development Ltd to fund and commercialise research from our group.</p> <p>Alan Dalton: Significant research outcomes – results - Functional liquid structures by emulsification of graphene and other two-dimensional nanomaterials, M. Large <i>et al.</i>, Nanoscale. - Considerations for spectroscopy of liquid-exfoliated 2D materials: emerging photoluminescence of <i>N</i>-methyl-2-pyrrolidone, S. Ogilvie <i>et al.</i>, Nature: Scientific Reports. - Understanding solvent spreading for Langmuir deposition of nanomaterial films: A Hansen solubility parameter approach, M. Large <i>et al.</i>, Langmuir.</p>
<p>Please provide a brief update on reviews of your schools' research centres (maximum of 250 words):</p>	<p>University Research Centre in Quantum Technology recently established</p>
<p>Any other issues:</p>	<p>Other news</p> <p>Bertram Duering: - expert reviewer for European Commission in H2020 Marie Skłodowska-Curie actions WIDESPREAD-05-2017: TWINNING call</p> <p>Bertram Duering: - Co-organiser of Minisymposium Kinetic and mean-field models in socio-economics and life sciences, SIAM Conference on Analysis of Partial Differential Equations (PD17), 9-12 December 2017, Baltimore, Maryland, USA</p>

	<p>Antonella De Santo: “External Esteem Indicators” * a promotion case (to Professor) at a Russell group university * a Killam Prize application (http://canadacouncil.ca/funding/prizes/killam-prizes) * a Canada Research Chairs application (http://www.chairs-chaire.gc.ca/home-accueil-eng.aspx) * a RESTART proposal to the Research Promotion Foundation (https://iris.research.org.cy/#/)</p> <p>Luiz Vale Silva: Preparation of an article with researchers from Slovenia</p> <p>Alan Dalton: Dr Alice King visited HKUST in Hong Kong funded by her Kroto Fellowship to explore new research collaborations.</p> <p>Max Jensen: Max has won an LMS award to facilitate exchanges with Prof Andreas Prohl (University of Tuebingen) to Sussex and the Universities of Chester, Nottingham, and York.</p>
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Name:	Seb Oliver	School:	MPS
		Date:	16 Feb 2018