



Physics Scotland

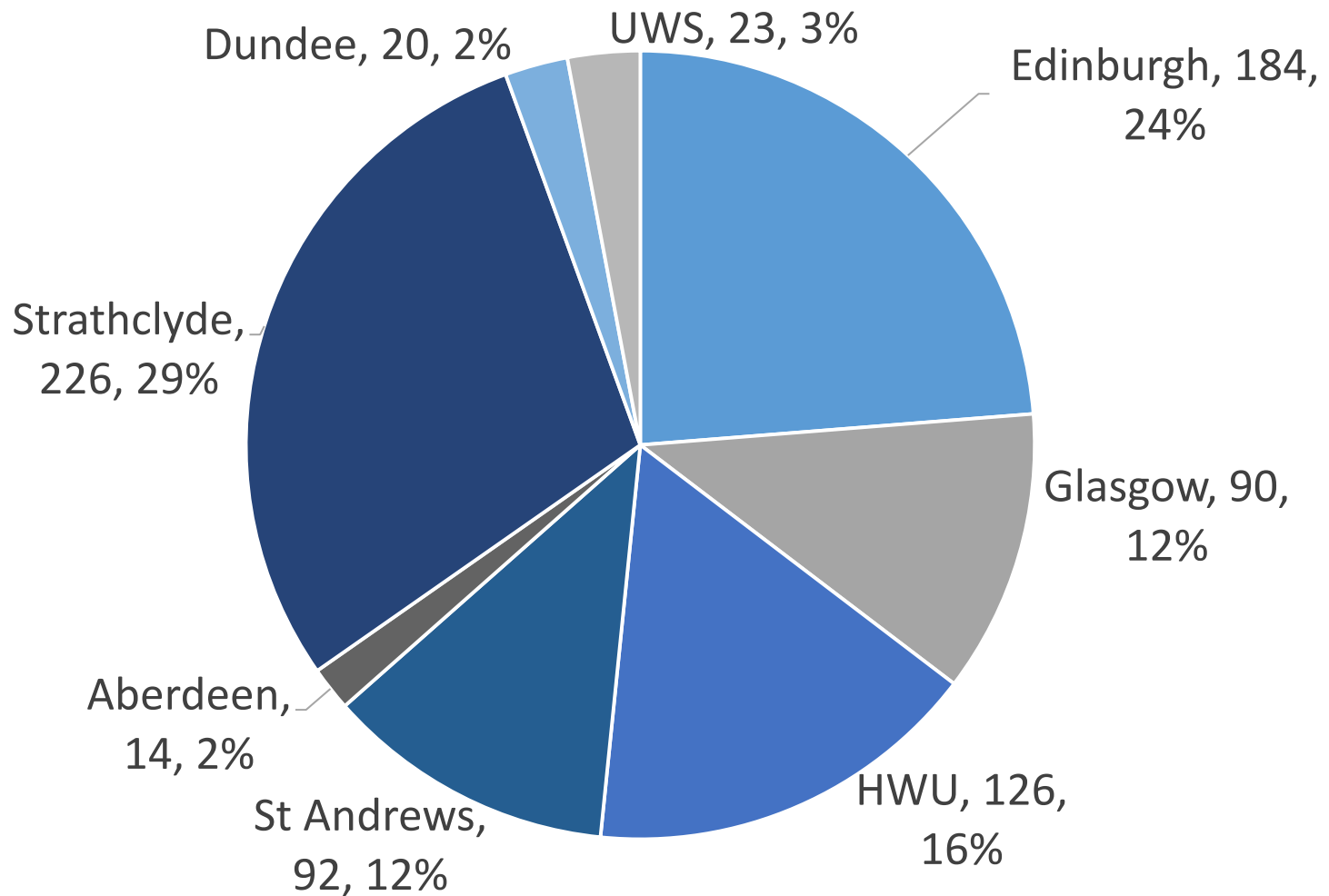
SUPA IAC Meeting – 7 June 2018

Graduate School

Dawn Beddard, Vicky Ingram, Sean Farrell



Graduate School numbers



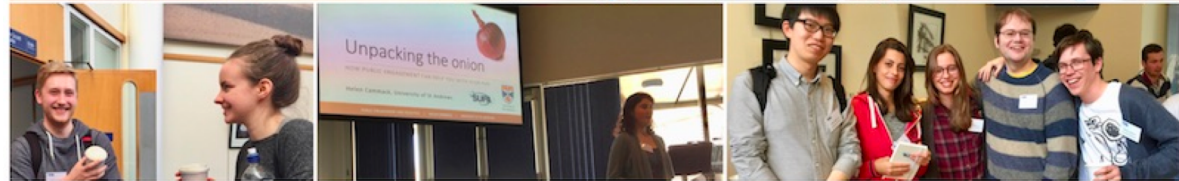
- This was the last Graduate School slide at the previous IAC meeting



Planning 2017/18

- All these points have been addressed
 - Further detail to follow
- As well as the day-to-day running of the Graduate School

- Careers events
 - Hold a careers event based on the successful model used the last two times
 - These are of particular benefit to graduate students towards the end of their study, and to post docs
 - Preferably jointly with IOP again
- VC room upgrades
 - Continue to extend use beyond the SUPA VC rooms
 - Parallel Graduate School Courses
 - Support colloquia series – *e.g.* ISM CDT
- Training provision revisit
 - Continue with course content provision by Theme
 - Add an industry-related course (see Iain's talk)
 - Look in to adding phys/chem and /or phys/biol courses
- Public Engagement Network
 - Engage more closely with SSERC and Education Scotland
- Utilise student representative group
 - Continue to use the student representative group to gather immediate feedback
- SUSSP interactions
 - Support SUSSPs and provide generated content for Graduate School



- SUPA Welcome Event
- October
- Discovery Dundee

- Welcome to Graduate School
- Introduction to the SUPA Research Themes by theme leaders or their representatives
- 2017/18 Speakers:
 - Prof. Marialuisa Aliotta, University of Edinburgh, *Nuclear Astrophysics from an Underground Laboratory in Italy*
 - Helen Cammack, Condensed Matter CDT, University of St Andrews, *Unpacking the onion: how public engagement can help you with your PhD*
 - Dr Marcel Schubert, University of St Andrews, *A laser laboratory inside a living cell*

Debbie Gunning	Leonardo
Euan McBrearty	University of Glasgow
Colin Greenshields	Co-Operative Bank
Gavin Cullen	Marks and Clerk
William Taylor	UK ATC
Ian Menzies	Education Scotland
Michelle Murtagh	Coherent Scotland
Alison O'Neil	Canon Medical Research Europe
Ross Leyman	Optos

70 students

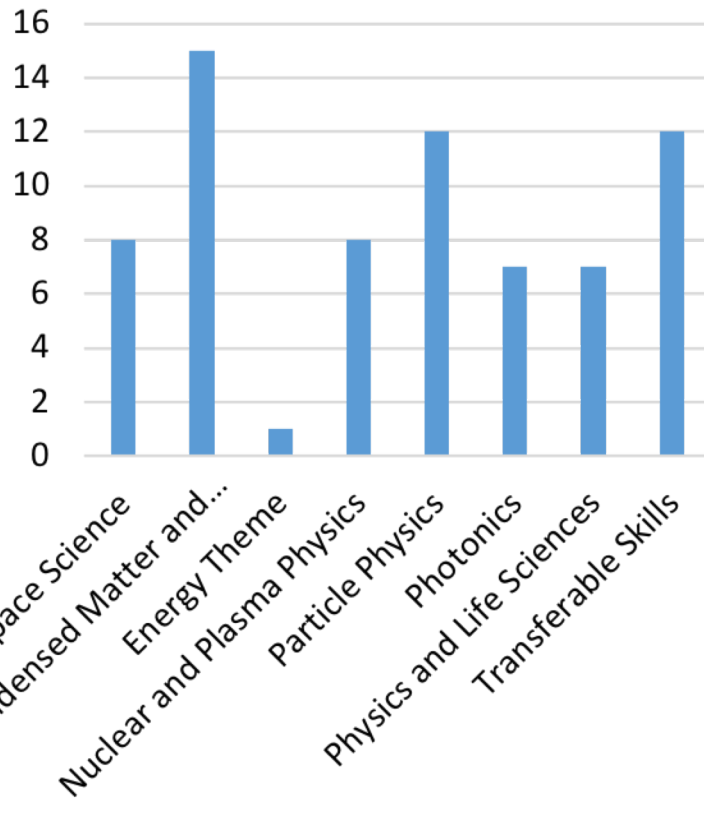
Dynamic Earth, Edinburgh

CV clinics provided by Edinburgh University, Glasgow University and Coherent Scotland

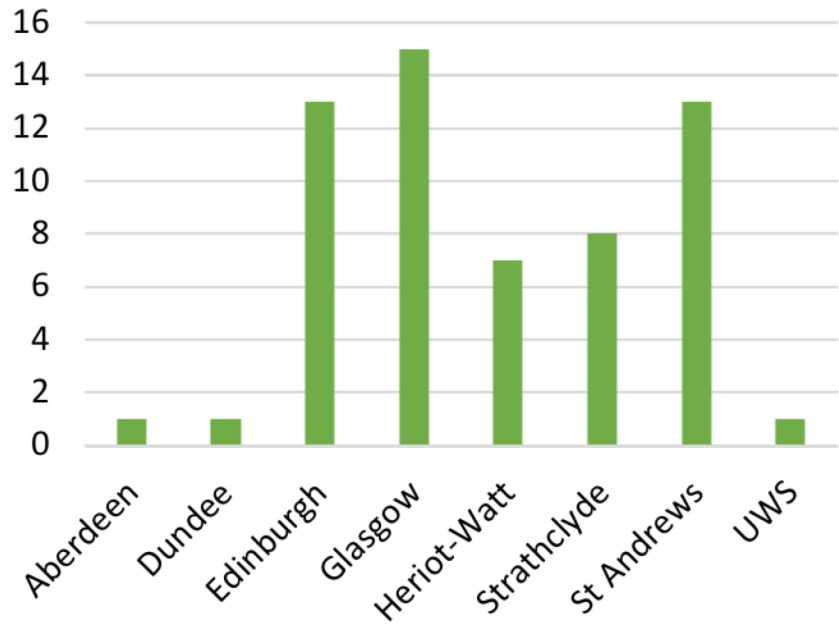


- 32 (29) S1 courses (Some are biennial)
- 37 (30) S2 Courses

Courses by Theme



Courses by University





VC: scheduling

Day	Monday									Tuesday									
Time	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	
11/09/17									IBP*	12/09/17									
18/09/17	BIP*	AAA*	MSP*	QCM	NAN	EAQ	ASP*	EPS*	IBP*	19/09/17	AAA*	TOP*	MSP*	PRI	QFT*	EPS*			
25/09/17	BIP*	AAA*	MQF*	MSP*	QCM	EAQ	ASP*	EPS*	IBP*	26/09/17	AAA*	TOP*	MSP*	GWD	PRI	PBE	QFT*	EPS*	
02/10/17	BIP*	AAA*	MQF*	MSP*	QCM	EAQ	ASP*	EPS*	IBP*	03/10/17	AAA*	TOP*	MSP*	GTH	ACC	PBE	EPS*	EPS*	
09/10/17	BIP*	AAA*	MQF*	MSP*	QCM	GWD	EAQ	ASP*	EPS*	IBP*	10/10/17	AAA*	TOP*	MSP*	GTH	ACC	PBE	QFT*	EPS*
16/10/17	BIP*	AAA*	MQF*	MSP*	QCM	GWD	EAQ	ASP*	EPS*	IBP*	17/10/17	AAA*	TOP*	MSP*	GTH	ACC	PBE	QFT*	EPS*
23/10/17		GTH	GTH	MQF*	QCM	COO	EAQ	ASP*	COO	IBP*	24/10/17				ACC	PBE			
30/10/17	BIP*	AAA*	MQF*	MSP*	QCM	GWD	COO	EAQ	ASP*	IBP*	31/10/17	AAA*	TOP*	MSP*	GTH	ACC	QFT*	EPS*	
06/11/17	BIP*		MQF*	MSP*	QCM	GWD	COO	EAQ	ASP*	IBP*	07/11/17		TOP*	MSP*		ACC	QFT*	EPS*	
13/11/17	BIP*		MQF*	MSP*	QCM	GWD	COO	EAQ	ASP*	IBP*	14/11/17		TOP*	MSP*		ACC	QFT*	EPS*	
20/11/17	BIP*		MQF*	MSP*	QCM	GWD	COO	EAQ	ASP*	IBP*	21/11/17		TOP*	MSP*	GWD	ACC	QFT*		
27/11/17	BIP*		MQF*	MSP*	NAN	EAQ	ASP*	EPS*			28/11/17	IDA	TOP*	MSP*			QFT*		
04/12/17			MQF*	MQF*	NAN	EAQ					05/12/17		IDA						
11/12/17			MQF*	MQF*							12/12/17		IDA						
18/12/17											19/12/17								

	Wednesday							Thursday							Friday																
	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00				
13/09/17			BAL							14/09/17		TOP*	MSP*			QFT*	EPS*			15/09/17	BIP*	IBP*		NAN			QFT*				
20/09/17	BIP*	TOP*	RQF*	BAL	NAN	CCH				21/09/17	AAA*	TOP*	MSP*	QCM	PRI	QFT*	ASP*	EPS*	22/09/17	BIP*	IBP*	RQF*	EAQ	NAN	PRI		QFT*				
27/09/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	GTH			28/09/17	AAA*	TOP*	MQF*	MSP*	QCM	PRI	QFT*	ASP*	EPS*	29/09/17	BIP*	IBP*	RQF*		NAN	PRI	PBE	QFT*			
04/10/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	GTH			05/10/17	AAA*	TOP*	MQF*	MSP*	QCM	GWD	EPS*	ASP*	EPS*	06/10/17	BIP*	IBP*	RQF*	EAQ	NAN		PBE	VAC			
11/10/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	DET	DET		12/10/17	AAA*	TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*	EPS*	13/10/17	BIP*	IBP*	RQF*	EAQ	PPH	NAN	GWD	PBE	QFT*	VAC	
18/10/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	DET	DET		19/10/17	AAA*	TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*	EPS*	COO	20/10/17	BIP*	IBP*	RQF*	EAQ	PPH	NAN	GWD	PBE	QFT*	VAC
25/10/17	GTH	GTH	RQF*	BAL			DET	DET		26/10/17			MQF*	MQF*	QCM		ASP*				27/10/17		IBP*	RQF*	EAQ	PPH	GWD	PBE	VAC		
01/11/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	DET	DET		02/11/17	AAA*	TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*	EPS*	COO	03/11/17	BIP*	IBP*	RQF*	EAQ	PPH	NAN	GWD		QFT*	VAC
08/11/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	DET	DET		09/11/17		TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*	EPS*	COO	10/11/17	BIP*	IBP*	RQF*	EAQ	PPH	NAN	GWD		QFT*	VAC
15/11/17	BIP*	TOP*	RQF*	BAL	NAN	CCH				16/11/17		TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*	EPS*	COO	17/11/17	BIP*	IBP*	RQF*	EAQ	PPH	NAN	GWD		QFT*	VAC
22/11/17	BIP*	TOP*	RQF*	BAL	NAN	CCH	DET	DET		23/11/17		TOP*	MQF*	MSP*	QCM	PPH	QFT*	ASP*			24/11/17	BIP*	IBP*	RQF*	EAQ	NAN	GWD		QFT*	VAC	
29/11/17	BIP*	TOP*	BAL	NAN	CCH	DET	DET	DET		30/11/17		TOP*	MQF*	MSP*	QCM		QFT*	ASP*			01/12/17	BIP*		EAQ	NAN				QFT*	VAC	
06/12/17				NAN						07/12/17			MQF*	MQF*							08/12/17			EAQ						VAC	
13/12/17					DET	DET	DET			14/12/17											15/12/17							NAN	NAN		
20/12/17										21/12/17											22/12/17										



New Course Highlights

Solid State Lasers

An introduction to the physics, engineering, and thermal management of solid-state lasers

Experimental Atomic & Quantum Optics

Atomic Structure, Atoms in Magnetic Field, Atom-Light Interactions, Interactions in Hot Atomic Media, Optical Dipole Trapping, Laser Cooling, Atomic Metrology, Data Analysis, and Experimental Electronics.

Electron Microscopy,

Introduction to the basic principles of electron microscopy and discusses several commonly used techniques for microstructural analysis of solid state materials.

Industry Skills Course

IP and Patents (Marks and Clerk), Product Line Management (Coherent), Risk Management (Thales), Decision Making Skills (Optos), Getting to the Point (NPL)



Vscene commercialisation

Ajenta provide the Vscene video conference service used for SUPA lectures.

Vscene commercialisation – March 2018:

- Central JISC funding model → Commercial subscription per university.
- 7 out of 8 SUPA universities have agreed, or are negotiating licences.
- SUPA will be arranging lectures using University of Glasgow licence.

Ajenta have launched 'Vscene 2.0': extending their established video conference service to support web based discussions and video meetings.

Vscene 2.0 – September 2018:

- No substantial changes for staff and students joining from an SUPA room.
- A new website for people joining using web browser or mobile devices.
- Access to new 'Meeting spaces' for discussion and ad-hoc meetings.
- Working with a partner who are motivated to adapt and develop their product to support the needs of research staff and students.



Prize Studentships

- Total of 146 fully complete applications this year
- Part studentship offered (process ongoing)
- No funding for future years

- Changing 'Badged' students to "SUPA Postgraduate Prize" for outstanding 3rd year researchers, judged by GSC, awarded at Annual Gathering, winning student invited to present



Distinguished Visitors and Events

5 Distinguished Visitors

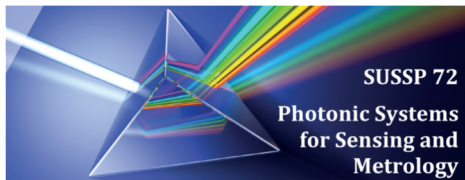
- Christophe N. C. Pichon, Institut d'astrophysique de Paris, CNRS, France
- David Valls-Gabaud, Observatoire de Paris , France
- Neil Turok, Perimeter Institute, Canada
- Prof. (em.) Dr. Kristiaan Heyde, Ghent University, Belgium
- Dr Aimo Winkelmann, Bruker Nano GmbH, Berlin, Germany

6 Events

- SCAM 2017
- Young Atom Opticians 2018
- IoP Nuclear Physics Conference 2018
- Workshop "The Quantum to Classical Transition"
- Young Theorists' Forum 10
- Business of Integratable Technology: Joint CDTs



Summer Schools



SUSSP 73
Gravitational Wave Astronomy
St Andrews, Scotland, 23rd July to 5th August 2017

Summer School in Innovation and Entrepreneurship in Photonics
University of St Andrews, Scotland 16th - 23rd June 2018
Registration closes 31st March. Limited Bursaries available



Dr. Thomas Baer
Stanford University,
Executive Director,
Photonics Research Centre



Prof. Sir David Payne
University of Southampton,
Director,
Optoelectronics Research Centre



Prof. Caroline Boudoux
Professor and Co-Founder,
Castor Optics



Matthew Wasley
Knowledge Transfer
Manager for Photonics,
KTN



Linda Smith
President,
Ceres Technology Advisors



Prof. Cliff Jones
University of Leeds,
Founder & Chief Scientific
Advisor, Displaydata



Dr. Sophie Hippmann
Head of Think Tank,
Fraunhofer-Gesellschaft



Dr. Chris Dorman
Vice President & General
Manager,
Coherent Scotland



Dr. Andrea Lovera
Head of Solutions Division,
FEMTOprint



Prof. Martin Dawson
University of Strathclyde,
Director,
Fraunhofer CAP



Dr. Thomas Neuenhahn
Head of Innovation
Management,
Siemens

- External to SUPA meetings attended by the Graduate School:
 - Science and the Parliament 2017
 - White Rose Industrial Physics Alliance
 - Condensed Matter Management Group Meetings
 - Scottish Government STEM Strategy
 - ScotCHEM
 - ScotHERD
 - ScotPEN
- SUPA meetings organised with input from Graduate School:
 - Student Welcome
 - Annual Gathering
 - Careers Event
 - Industrial Strategy Challenge Fund workshop
 - Workshop on infrared technologies and applications



SFC Funding Bid

Leveraging Scotland's World Leading Research in Optical Imaging for Medicine, Healthcare and Biology

Joint submission to the Scottish Funding Council (SFC) from:

Scottish Universities Physics Alliance (SUPA)

Universities of Aberdeen, Dundee, Edinburgh, Glasgow, Heriot-Watt, St Andrews, Strathclyde and West of Scotland

Scottish Universities Life Sciences Alliance (SULSA)

Universities of Aberdeen, Dundee, Edinburgh, Edinburgh Napier, Glasgow, Heriot-Watt, Robert Gordon, St Andrews, Stirling, and Strathclyde

Scottish Imaging Network: A Platform for Scientific Excellence (SINAPSE)

Universities of Aberdeen, Dundee, Edinburgh, Glasgow, St Andrews, Stirling, and Strathclyde





SFC Funding Bid

Leveraging Scotland's World Leading Research in Optical Imaging for Medicine, Healthcare and Biology

May 2018: Job specification and targeting of companies to identify Industrial Innovator in Residence.

June 2018: Appointment of Industrial Innovator in Residence

July-Sept 2018: Formation of consortia through focussed workshops

Sept-Dec 2018: Crucible style workshops

July 2018-April 2019: Influencing of calls

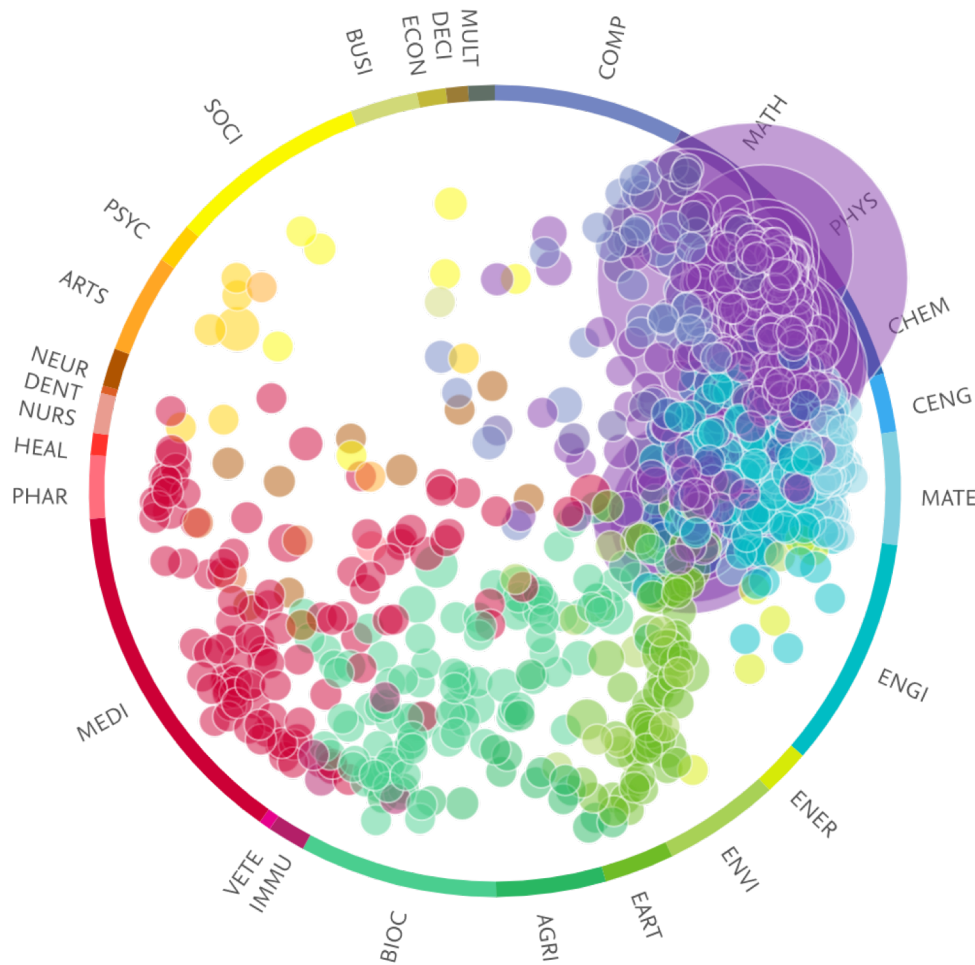
Oct 2018-April 2019: Preparation of applications

April -June 2019: Initialising projects

SUPA publications, 2010-2017

Source: SciVal

45% of our publications are "Physics"



Tools available:

- Citations
- Collaboration
 - industry
 - international
- REF UoA
- Social media impact
- Usage

Initiative to support:

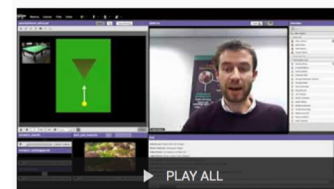
- physics teachers
- non-physicists teaching physics in lower secondary
- primary teachers

to be best equipped to meet the challenges of STEM education, remote locations, and disadvantaged areas

Videos of our researchers helping teachers with the bits they aren't confident with or that are new.

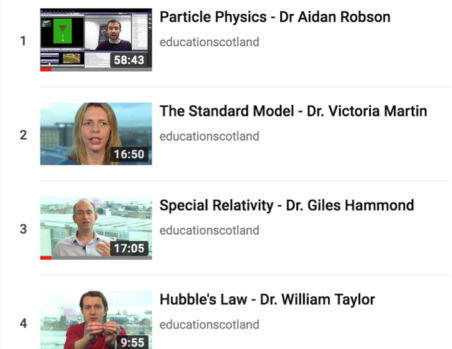
In addition to Education Scotland content.

It's NOT a resource for the classroom!



Physics Higher - Professional learning videos

17 videos • 164 views • Last updated on 16 Aug 2017





SUPA Education

- SUPA's unique position to be a quality brand with critical mass
- Growing desire of funders for researchers to engage outside universities
- Aging physics teacher demographic
- New content in Curriculum for Excellence
- Non-physicists teaching physics at primary and lower secondary
- Scottish Government STEM strategy

"to build the capacity of the education and training system to deliver excellent STEM learning so that employers have access to the workforce they need"



SUPA Education

- Grow the understanding and confidence of teachers involved in physics
- Improve confidence in new areas of the curriculum
- Know where physics is going – hear from groundbreaking researchers
- Get more students studying physics, and doing so in Scotland
- For students to see physics as an achievable subject, with less need for an expert to come in to teach something



SUPA Education

SUPA will be proactive in collating, coordinating and generating content and ensuring quality:

1. They send us questions education@supa.ac.uk OR Tricider tool
2. We find an expert
3. They're filmed in our VC rooms
4. We do quality control (SUPA Public Engagement Network)
5. We publish on our website (and glow, still tbc)

The questions will be considered anonymous!



Planning 2018/19

- Events
 - Welcome event (October)
 - Careers event (January)
 - Annual Gathering
- Implement Vscene 2.0
- Training provision revisit
 - Review transferrable skills provision
 - Monitor technical skills
- Public Engagement activity
 - Establish SUPA Education
 - Support researchers in PE&O activity
- Continue to engage with students and post-docs via representative groups
- SUSSP interactions



Challenges

- Space utilisation – new system 2018/19 to share space with dept.
- Attracting international students without prize studentship
- Supporting CDT bids and programmes
- Supporting REF2021
- Keeping up with evolving student requirements



Discussion

1. Is the 40/20hr split of required training and development still appropriate?
2. What should be our expectations of assessment of technical courses?
3. Should we be providing physics-specific transferrable skills courses?
4. Should Public Engagement & Outreach be a compulsory element of being a SUPA student? Post-doc?
5. Are we using the right technology (e.g. VScene, moodle)?
6. How can we better support Post-docs?
7. What else should we be aiming for with the SUPA Education initiative?