SUPA Physics Scotland

CEO Report to the SUPA International Advisory Committee

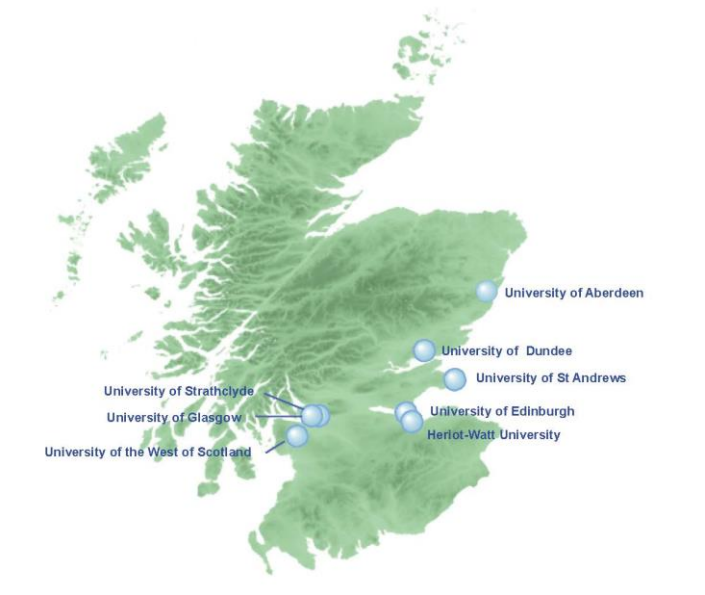
26th May 2016

Alan Miller

CEO & Director of Graduate School

University of Aberdeen · The University of Edinburgh · University of Glasgow · Heriot-Watt University · University of St Andrews · University of Strathclyde Glasgow · University of the West of Scotland UWS · University of Dundee

What is SUPA?



Strategic Research Alliance

- 8 HEI Partners + Associate Member
- 7 Research Themes
- SUPA Graduate School

SUPA THEMES

- Astronomy & Space Science
- Condensed Matter and Materials Physics
- Nuclear and Plasma Physics
- Particle Physics
- Photonics

- Physics and Life Science
- Energy

University of Aberdeen · The University of Edinburgh · University of Glasgow · Heriot-Watt University · University of St Andrews · University of Strathclyde Glasgow · University of the West of Scotland UWS · University of Dundee

2003 vision …
…just as relevant in 2016

SUPA will:

- **pool and enhance Scotland's strongest physics research to develop international leadership,**
- **provide a magnet for researchers and sponsors worldwide.**

How?

- **Agreed national strategy**
- **Inter-institutional management structure**
- **Promotion and coordinated pursuit of excellence**
- **Coherent approach to staffing strategy**
- **Highest quality research training**
- **Enhanced funding opportunities**

SFC Funding

- **Support for:**
  - **Recruitment of research leaders**
  - **Construction of state-of-the-art facilities and laboratories**
  - **SUPA Graduate School**
    - **prize studentships**
    - **network of video classrooms.**
    - **extensive range of advanced courses**
    - **Distinguished visitors, summer schools, careers & other events**
- **SUPA I: 2004-2009 (£14.7M total; 50:50)**
- **SUPA II: 2010-2017 (£47.6M total; 33:67)**
- **PEER (Pools Engagement in European Research)**
- **PECRE (Postdoctoral Early Career Researcher Exchanges)**
- **Further Funding Application (2017-2021) submitted to SFC, May 2016**

Snap-shot of SUPA II in 2016

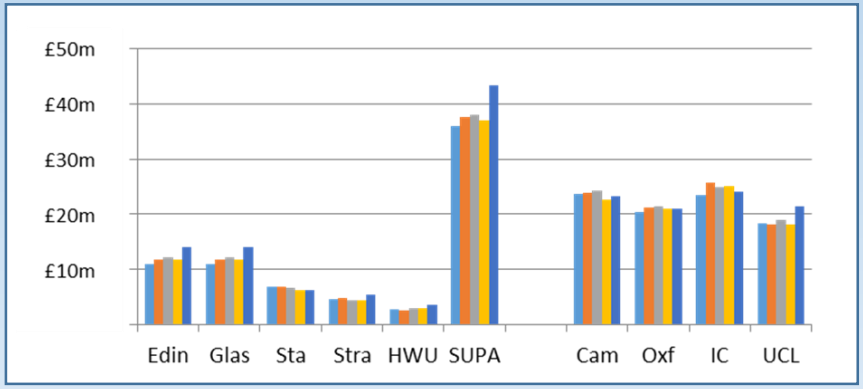
• **Total (T&R) Academic Staff**	**281**
• **Total Research (R) Staff**	**434**
• **Total Graduate Students**	**614**
• **Collaborative Grant Income Cumulative**	**£320 M**
• **Non Collaborative Grant Income Cumulative**	**£163 M**
• **Number of Prestigious Fellows**	**117**
• **Number of ERC grants**	**31**

A powerful network of over 1200 research physicists, that creates critical mass, with links and relationships into national and international public bodies, private organisations and industry, that no one HEI can provide alone.

"All alliance partners are committed to SUPA as a permanent feature of the Scottish Physics landscape".

REF2014 Statistics

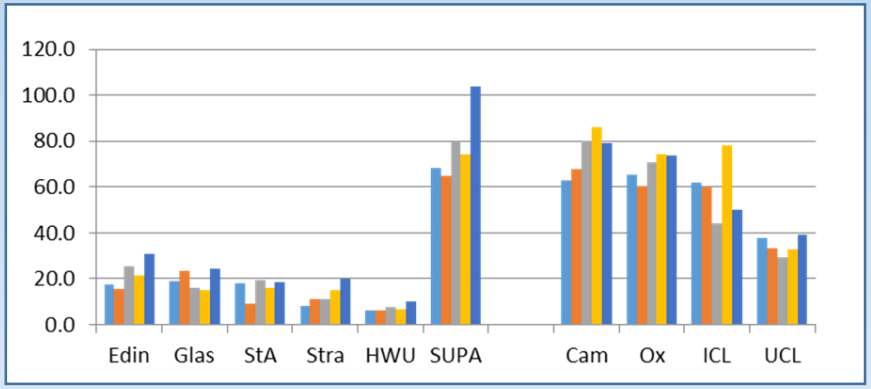
Income



Annual Research Income (by spend)

(REF2014 assessment period, 2008-09 to 2012-13; excludes in-kind contributions, PGR and SFC funding).

PGR students



Annual Physics PhD graduations

(REF2014 assessment period, 2008-09 to 2012-13).

SUPA II Funded Facilities

- SUPAscopes 1m Robotic telescope (Global network)
- The HARPS-N Spectrograph (La Palma)
- Low Vibration Facility / Clean Room (St Andrews)
- SCAPA - Scottish Centre for the Application of Plasma-based Accelerators (Strathclyde)
- MagTEM microscope (Glasgow)
- Electron beam writer, lithography, plasma reactive ion etcher systems & clean room (Heriot-Watt)
- Biophotonics Laboratory (Dundee)

Graduate School

Combines the knowledge and skills base of 8 HEIs

- Over 50 course (800 hours of lectures) pa

Recruitment & enrollment:

- Centralised applications for PhDs
- Prize studentships
- MySUPA portal for PhD students

Minimum requirements:

- 40 hours physics-based studies during first 2 years (57 courses offered)
- 20 hours generic skills development during first 2 years

Industry engagement

- Exchanges and placements

Outreach opportunities

Graduate School Lectures
Residential Courses
Career events
Summer Schools

New Developments - 1

- Staff Changes:
  - May 2015: Alan Miller replaced Jim Hough as CEO of SUPA
  - June 2015: Keith Dingwall completed his STFC IPS Fellowship
  - July 2015: Richard Mosses completed his KT BDM contract (SOA supported)
  - July 2015: Avril Manners completed her contract as Director of SUPA Graduate School
  - Aug 2015: Director of Graduate School incorporated into SUPA CEO role
  - Aug 2015: Christian Killow appointed as 50% Graduate School Coordinator
  - Apr 2016: Anne Pawsey appointed as 50% Graduate School Coordinator

- Former Impact & Training Committee renamed Graduate School Committee

- SUPA monthly Newsletter launched, Jan 2016 http://www.supa.ac.uk/newsletter

Features on:
- People, Facilities and Themes
- Research Highlights
- Events & Visitors
- Funding opportunities

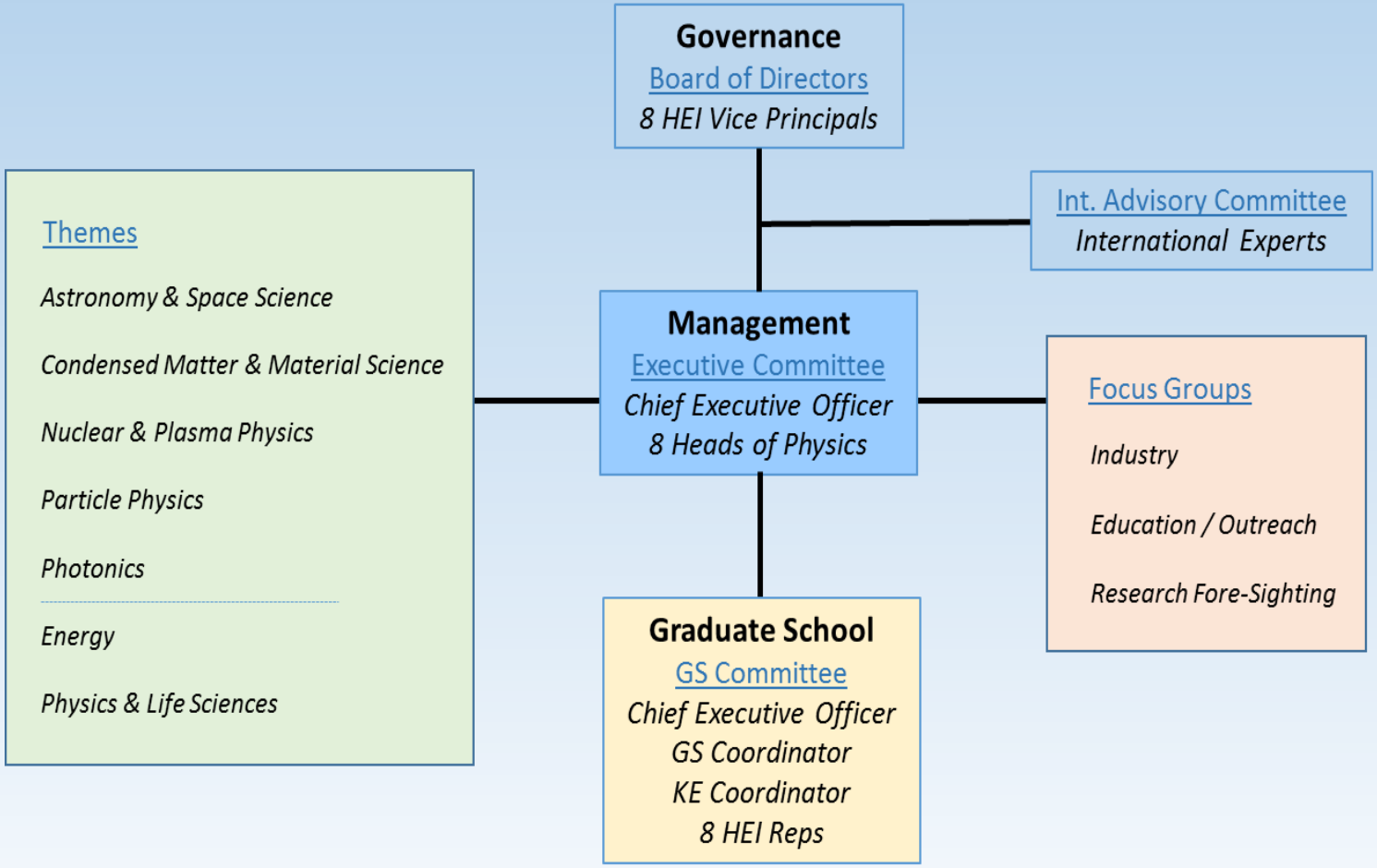
New Developments - 2

- 3 Cross-Theme Focus Groups:
  - Education and Outreach
  - Industry
  - Research Foresighting
- SUPA Strategic Plan 2016-2021 agreed by BoD, Feb 2016
- Associate Membership formally agreed:
  - UK Astronomy Technology Centre (incl. Higgs Innovation Centre), May 2016
- Formal collaboration / KE relationships under discussion with:
  - Fraunhofer APC, NPL–Scotland, SUSSP, SU2P
- Planning of major upgrade of network of video classrooms
  - State-of-the-art digital, high bandwidth, high definition facility
  - Extra functionality to extend methods of presentation and delivery
  - Simultaneous course and seminar transmissions
  - Potential beyond SUPA; world-wide, partnering, CPD (industry, schools),
- UNESCO International Year of Light
  - Multi-organisation, multi-disciplinary, SFC support

Diversity Initiatives

University	Athena Swan (departmental)	Athena Swan (institutional)	Juno	Stonewall
Aberdeen	Bronze application submitted April 2016	Bronze	Supporter	Champion
Dundee	Bronze	Bronze	-	-
Edinburgh	Silver	Silver	Champion	Champion
Glasgow	Silver	Bronze	Champion	Champion
Heriot-Watt	Bronze	Bronze	Supporter	-
St Andrews	Bronze	Bronze	Practitioner	Champion
Strathclyde	Bronze	Bronze	-	-
UWS	-	Bronze	Application on hold	-

Structure


Governance
Board of Directors
8 HEI Vice Principals
Int. Advisory Committee
International Experts
Themes
Astronomy & Space Science
Condensed Matter & Material Science
Nuclear & Plasma Physics
Particle Physics
Photonics
Energy
Physics & Life Sciences
Management
Executive Committee
Chief Executive Officer
8 Heads of Physics
Focus Groups
Industry
Education / Outreach
Research Fore-Sighting
Graduate School
GS Committee
Chief Executive Officer
GS Coordinator
KE Coordinator
8 HEI Reps

SUPA II - Major Successes

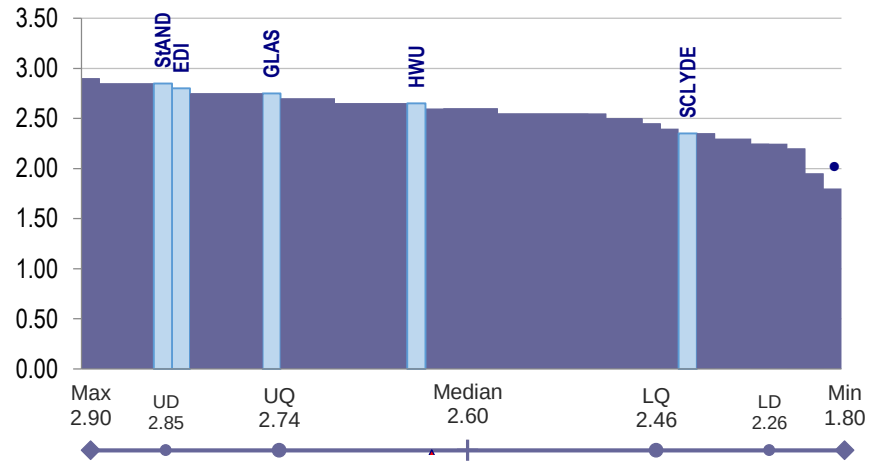
- Nobel Prize 2013: Peter Higgs (Edinburgh)
- Gravitation Waves 2016: IGR (Glasgow, Strathclyde, UWS, Edinburgh)
- 31 ERC Grants
- RAE2008: UK ranking
  - 'Overall GPA': St Andrews 2nd= ; Edinburgh 5th ; Glasgow 6th=
- REF2014: UK ranking

  PHYESTA (Edinburgh/St Andrews): 1st joint submission in Physics in the UK
  - 'Overall GPA': Strathclyde top 1st ; PHYESTA: 3rd=
  - 'Output Quality': PHYESTA 2nd
  - 'Impact': Strathclyde: 2nd; all SUPA HEIs in top 15.
  - 'Research Power' of SUPA collectively exceeds that of the big 4 in England.

SUPA Overall GPA

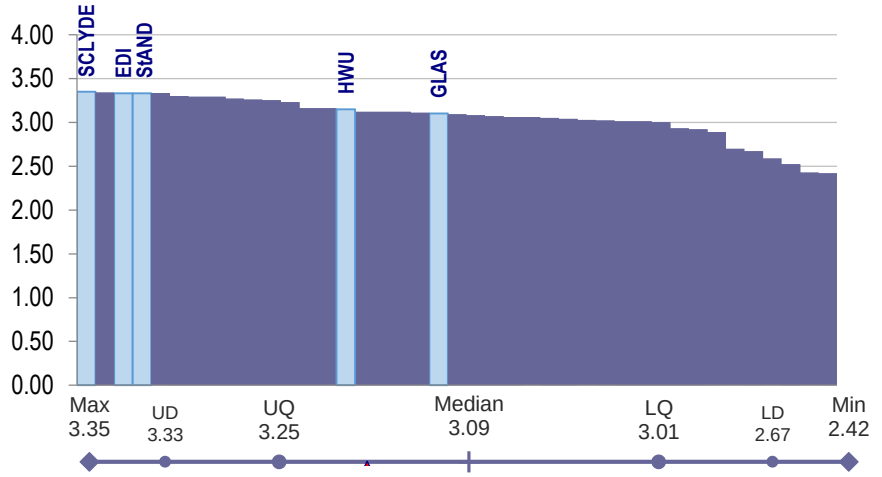
RAE2008

RAE2008: Overall Profile GPA



REF2014

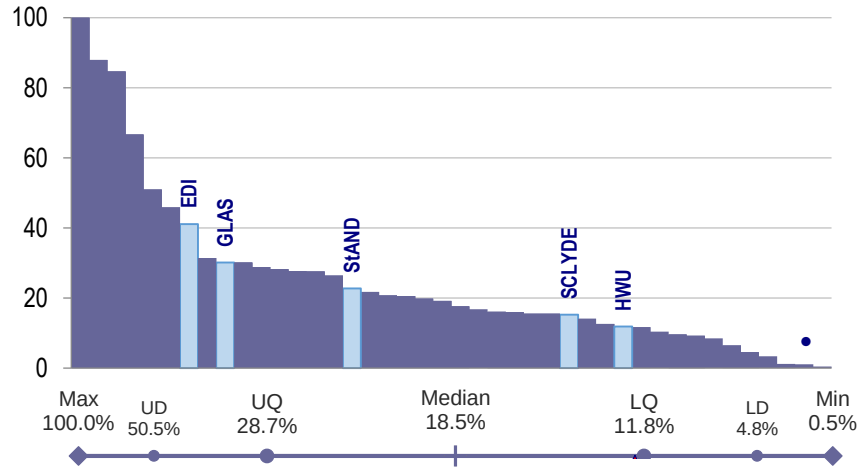
REF2014: Overall Profile GPA



SUPA Overall Power (16-9-4-1)

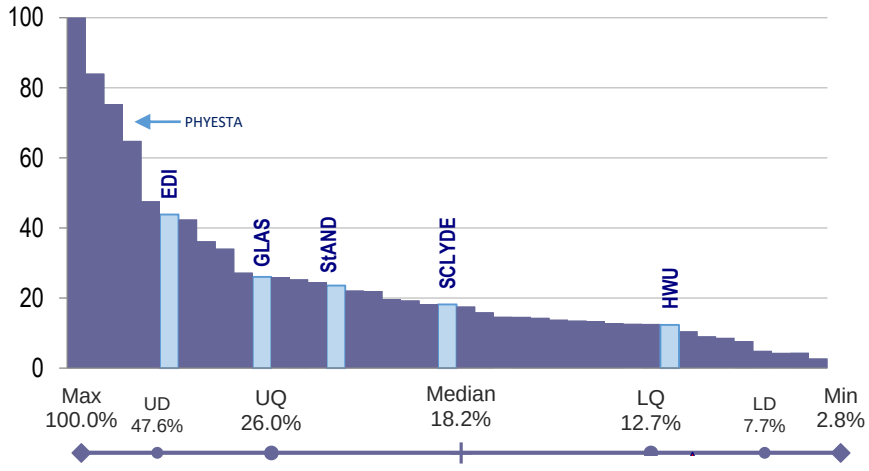
RAE2008

RAE2008: Overall Profile Power



REF2014

REF2014: Overall Profile Power



Publications

Publication Rates

Year	2010-11	2011-12	2012-13	2013-14	2014-15
Number	1100	1300	1378	1038	1663

Peer reviewed publications - the number has risen by approximately 600 during the last review period

Citation Rate Per Calendar Year

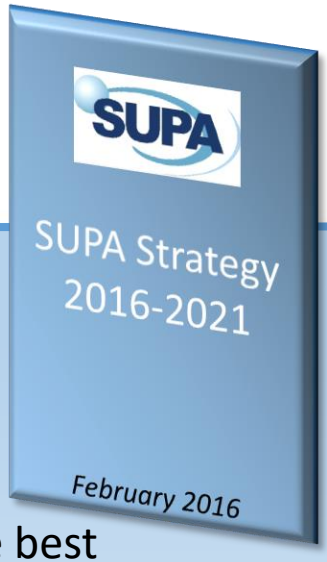
Year	2010	2011	2012	2013	2014	2015
2010	1.9					
2011	5.1	2.4				
2012	6.3	5.7	2.9			
2013	5.1	4.6	5.9	1.3		
2014	2.7	2.6	3.9	2.5	0.7	
2015	1.6	2.4	3.3	2.3	2.3	0.6

External Drivers

10 Key Drivers:

- REF2020/21 – Collaborative strategy, impact agenda, joint submissions…
- RCUK – Shaping capability, centres, facilities, themes, CDTs...
- Europe – Horizon 2020, ERC...
- Strategic initiatives - Grand challenges, interdisciplinary groupings…
- Developing research leaders – Skills pipeline, Fellowships, CPD...
- Business – Industry, Catapults, Innovation Centres…
- Innovation & Entrepreneurship – Company creation, SMEs…
- Promoting & Supporting Physics – Public & policy engagement, schools…
- Dissemination – Open access, social media…
- Equality & diversity – Athena Swan, Juno…

Strategy 2016-2021



10 Key Objectives:

- Continue to build collaborative Physics research capacity in Scotland of the highest quality, benchmarked against global competitors.
- Continue to develop the SUPA Graduate School with the aim of offering the best training in the world, attracting top research students globally.
- Continue to expand international links, relationships, collaborations and alliances.
- Create a supportive environment for PDRAs to maximise expectations for career achievement.
- Encourage women in development and advancement in careers in physics.
- Facilitate interdisciplinary cooperation and collaborations via other Scottish research pools, whilst not diminishing the importance of physics as a discipline.
- Expand SUPA's industry engagement via the Graduate School and other mechanisms.
- Support impact creation, development and tracking.
- Grow coordinated school, public and policy engagement.
- Provide a basis for collaboration on preparation for REF2020/21.

Summary: Challenges and Opportunities

Challenges:

- End of SUPA II funding in July 2017 (no cost extension during 2016/17)
- Maintaining adequate central support for SUPA post-August 2017
- Competing in an increasingly tough UK research funding environment
- New requirements on efficiency & productivity in research
- Creating and monitoring impact which often only comes good far down the line

Opportunities:

- Exploiting the very positive pan-Scotland relationships built up in SUPA
- Joining up the breadth of physics from the most fundamental science through translational and applied research to achieve recognised societal impact
- Retaining and utilising the high quality and intellectual capacity of our post-graduates and PDRAs in Scotland
- Working more effectively across boundaries to contribute to grand challenges
- Working in closer partnership with industry via industry facing institutes
- Developing the existing knowledge base and structures within SUPA to extend advanced courses and training beyond Scotland.

Questions?