Welcome to GRADnet
Prof. Peter McDonald – GRADnet co-ordinator
Dr Dawn Duke - Director of Graduate Training
World-class knowledge
World-class facilities
Universal perspective

Physics PhD Studentship Opportunities

Funding is available in South East England*

Take nine world-class University Physics Departments. Bring together their research, knowledge and resources. The result is the South East Physics Network (SEPnet).

Through SEPnet we offer a regional collaborative training programme for all Physics PhD students with a real focus on your future. Find out more including how to apply and learn about other postgraduate study options at www.sepnet.ac.uk/pw

*Subject to eligibility
What’s in GRADnet for you?

• Advanced physics courses from across the network, many video conferenced and made available on-line.
• Access to residential schools, conferences and workshops
• Technical user groups, online resources and discussion boards – much of it student led.
• Professional skills training
• Employer Engagement Opportunities
• Opportunities to expand your network of contacts
• Your chance to build your CV!
Minimum expectation?

- 40 hours of Advanced Physics and
- 20 hours of Professional skills training

... in each of your first two years

... from any source, appropriate to your needs and PhD project

... but GRADnet offers some quality options!
Lecture courses

Programming languages
Algebraic computing
Statistics
Optical spectroscopies
Symmetry in particle physics

Neutron and X-ray scattering
Observational cosmology
Nano-materials
Lasers in a nutshell
Dynamics of earth’s magnetosphere
Models of stellar populations

Quantum field theory
Theoretical cosmology
Advanced band structure theory
High performance computing

Hadron collider physics
Maths methods
Physics of particle accelerators
Soft matter physics
Lecture courses

Dynamics of the Earth's Magnetosphere

An introduction to Python

Dynamics of the Earth's Magnetosphere
Professional skills training

Effective Physics Researcher
4th Nov and 2nd Dec
London

Writing Retreat

Opportunities, CV and interviews

Leadership

Ethics

Entrepreneurship

Diversity in Physics

Public engagement

Assessment and marking for demonstrators

all with a physics angle
Building research communities

Working with Workshops
Radiation Users Group
Matlab
Lasers in a Nutshell
Algebraic Computing
Statistics

Latex
26 Oct
Python
Building research communities

- Student seminar series
- Student discussion sessions
  - Higgs mechanism – 28th Nov.
  - Wilson lines – 12th Dec.
  - See-saw mechanism – 19th Dec.
Residential workshops
NPL
what can you do with a Physics PhD
Residential school 2015
IBM
Leadership with Impact
Residential school
Culham
what can you do with a PhD
Residential school

Culham

what can you do with a PhD
Residential schools
Student feedback

interesting

enjoyable specific vague
entertaining practical complicated
modeling good long
Coming soon to a University near you!
Residential workshop
Numerical Modelling and Simulation – Dec 2015
Residential school
Building your Leadership Potential – February 2016
Residential workshop
Strong Correlations in Physics – April 2016
NeXT PhD Workshop:
New physics in LHC Run II era
– June 2016
Residential school
What can you do with a Physics PhD – July 2016
Coming soon to a University near you!
Peer learning

A student perspective from Katarzyna Krzyzanowska.
Peer learning

On-line Materials created by PhD students in response to: “I wish I had know that when I started my PhD”

Latex
Mathematica for Physicists
Quadrupole Ion Traps
NMR measurements
PhD Day 1: thinking about your next role
Plotting data in Matlab, Origin and Gnuplot
The publication process
Why choose to do a PhD

April and Rosh’s Latex
Michael’s PhD Day 1
Merlin's NMR how-to
Ilana’s Publication Process
Peer learning

New call open now:
“I wish I had know that when I started my PhD”

• More information: Video-Conference session 20th October

• We offer circa £1000 for each module offered and accepted
Student led conferences

- Effective Field Theories
- Realising the Potential of Future Science/Surveys
- Supersymmetry: from M-theory to the LHC

- University of Kent, January 2016
- Registration and abstract submission now open
- All costs met by GRADnet
Student-led conferences

Physics PhD students and PDRAs are invited to contribute to any of the three student-led 3-day conference/workshops being held in January 2016. These workshops will provide students with an opportunity to network and share their results and hear leading speakers in their field. All costs will be met by SEPnet.

For more information see the registration page below or contact mohan.hall@port.ac.uk.
What comes after your PhD?

SEPnet Universities - PhD 1\textsuperscript{st} Destinations

- Non-academic careers: 51%
- Research HE*: 49%

* This represents % in HE research at time of collecting data and is likely to reduce over time.
What comes after your PhD?
What comes after your PhD?
## Roles of SEPnet PGRs in non-academic careers

<table>
<thead>
<tr>
<th>Role</th>
<th>Position</th>
<th>Skills</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerosol Physicist</td>
<td>Development Manager</td>
<td>Officer</td>
<td>Research Lab Work</td>
</tr>
<tr>
<td>Analyst</td>
<td>Director</td>
<td>Operational Research Analyst</td>
<td>Researcher</td>
</tr>
<tr>
<td>Assistant</td>
<td>Energy Trading Specialist</td>
<td>Patent Consultant</td>
<td>Schools Liaison Adviser</td>
</tr>
<tr>
<td>Assistant Quantity Surveyor</td>
<td>Examiner</td>
<td>PET Radiochemist</td>
<td>Science Teacher</td>
</tr>
<tr>
<td>Astronomer</td>
<td>Financial Software Consultant</td>
<td>Photographer</td>
<td>Senior Analyst</td>
</tr>
<tr>
<td>Business Director</td>
<td>Geophysicist</td>
<td>Physicist</td>
<td>Senior Manager</td>
</tr>
<tr>
<td>Business Intelligence Specialist</td>
<td>Government Scientific Officer</td>
<td>President &amp; Founder</td>
<td>Senior Procurement Officer</td>
</tr>
<tr>
<td>Chemistry and Mathematics Tutor</td>
<td>Head of Physics</td>
<td>Professional Researcher</td>
<td>Senior Research Scientist</td>
</tr>
<tr>
<td>Clinical Scientist</td>
<td>Head of Radiation Division</td>
<td>Project Manager</td>
<td>Senior Scientist</td>
</tr>
<tr>
<td>Communication Systems Engineer</td>
<td>Health Physicist/Radiation Protection Specialist</td>
<td>Quality Manager &amp; Laboratory Analyst</td>
<td>Senior Scientist and Research Collaborations Manager</td>
</tr>
<tr>
<td>Communicator</td>
<td>Health Physics and Radiation Metrology</td>
<td>R&amp;D Physicist</td>
<td>Skin Imaging Scientist</td>
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<tr>
<td>Computer Modeller</td>
<td>Lab Manager</td>
<td>Radiation Physics Consultant</td>
<td>Software Developer</td>
</tr>
<tr>
<td>Consultant</td>
<td>Lecturer/Medical Physicist</td>
<td>Radioisotopes Physicist</td>
<td>Software Engineer</td>
</tr>
<tr>
<td>Data Scientist</td>
<td>Medical and Environmental Health Physicist</td>
<td>Radiotherapist</td>
<td>Soldier</td>
</tr>
<tr>
<td>Defence Scientist</td>
<td>Medical Physicist</td>
<td>Radiotherapy Developer</td>
<td>Statistician</td>
</tr>
<tr>
<td>Detection Researcher</td>
<td>MOD Civil Servant</td>
<td>Research Assistant</td>
<td>Teacher</td>
</tr>
<tr>
<td>Detector Scientist</td>
<td>Model Review and Quantitative Support</td>
<td>Research Doctor</td>
<td>Technical Manager</td>
</tr>
<tr>
<td>Developer</td>
<td>NMR Physics</td>
<td>Research Fellow</td>
<td></td>
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</table>
Employer engagement:

Mentoring

- Putting students in contact with those that graduated a few years ago
  - Careers advice
  - CVs etc
Employer engagement: Networking evenings

• A chance to network with employers,
• Special focus on SMEs
• Next one – May 2016
Employer engagement: Site visits

- A chance to see where Physicists work and what they do
Employer engagement:

Placements

• Opportunities for
  • work experience
  • research with impact
  • consultancy
Case studies

Technology Consultant
Rosh Sellahewa, Actica Consulting

Actica Consulting is a technology consultancy, helping a multitude of clients solve a variety of IT and logistics problems. They are a small company based in Guildford but work for clients across the UK.

Surrey was one of few universities that offered Physics with Nuclear Astrophysics. During my MPhys degree, I had a placement at Rutherford Appleton Laboratory, working on single photon detectors. It was interesting, but not the area I wanted to work in permanently.

After careful consideration I decided that a PhD in Theoretical Nuclear Physics would be the best start to my career. I briefly considered banking because it was so well paid. I then looked at big data because it’s an up and coming sector but ultimately I settled on consultancy. Getting paid to problem solve sounded great.

“Don’t limit yourself on who to contact unless you know for sure the type of industry you really considered or really around.”

Developing Database Prediction Models
Kelly Nock, Data Scientist at We Predict

“We Predict” are global leaders in predictive analytics working across several sectors including automotive and health. The company provides a predictive analytical service on their customers’ data sets.

Team Leader - Algorithm Development Team
Andrew Witham, Symetrica

Symetrica was established in 2002 to commercialise high performance gamma-ray spectrometers as a spin out from the Department of Physics and Astronomy at the University of Southampton. The company provides radiation detection solutions to the homeland security market.

After completing his MPhys in Astrophysics at University of Leeds, Andrew moved to Southampton and completed an Astronomy doctorate. Following a few months of related work post-submission he was offered an analyst job with Symetrica.

Andrew now works as team leader for the algorithm development team responsible for the key algorithms used in the detectors - primarily those involved with detecting and identifying radioactive sources. He considers himself fortunate to be part of an expanding hi-tech physics-based SME.

‘Though it is fascinating to study physics topics such as relativity and quantum mechanics, be sure to keep a keen interest in developing skills that will be useful in future careers with physics regardless of the specialised subject area’.

South East Physics Network
# GRADnet Student Reps.

<table>
<thead>
<tr>
<th>University</th>
<th>Rep</th>
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<tbody>
<tr>
<td>Hertfordshire</td>
<td>Jonathan Westcott</td>
</tr>
<tr>
<td>Kent</td>
<td>Jimmel Stewart (*)</td>
</tr>
<tr>
<td>Open</td>
<td>George Winston</td>
</tr>
<tr>
<td>Portsmouth</td>
<td>Matthew Withers</td>
</tr>
<tr>
<td>QMUL</td>
<td>Dominic Carter</td>
</tr>
<tr>
<td>RHUL</td>
<td>Toby Willis (*)</td>
</tr>
<tr>
<td>Southampton</td>
<td>Andy Smith</td>
</tr>
<tr>
<td>Surrey</td>
<td>Steve Parsons</td>
</tr>
<tr>
<td>Sussex</td>
<td>Christopher Harman</td>
</tr>
</tbody>
</table>

As at 1/9/15
GRADnet / SEPnet Staff.

Cristobel Veronica Dawn
gradnetadmin@sepnet.ac.uk
Virtual Research Environment – The VRE

Access all GRADnet opportunities through the VRE

www.sepnet.ac.uk/vre
The student perspective

Dominic Carter (QMUL)
Qui Manting (QMUL)
Manuel Marques (Kent)