

Upcoming Events Include:

Effective Researcher
Interactive 2 day course,
setting the foundation for
your doctorate.
The Open University, London
November 2015

Numerical Modelling & Simulations
A 2 day residential course
including Monte Carlo
and quantum mechanical
simulation.
Liphook, Hampshire
December 2015

GRADnet Winter School
A three day Residential
School will focus on the
skills required for effective
leadership and maximising
the impact of physics
research.
Discovery Park, Kent,
January 2016

A full list is available on
the GRADnet VRE:
www.sepnet.ac.uk/vre

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GRADnet
South East Physics Network

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'Meet the Employers' – A Networking Evening at Royal Holloway

This was the second time I attended the Connecting Industry and Researchers in Physics event. I found the speed-dating format to be extremely helpful and efficient as it allowed for the researchers and industry representatives to introduce themselves quickly and find out about what type of work they were doing. After everybody got to know each other, further and more in-depth conversations were had over the drinks and canapés. During both of these events I have not only met fantastic people from academia and industry but also identified a few possible future employers in my niche field.



Vytautas Astromskas
PhD at University of Surrey

GRADnet Summer School at IBM

I was one of thirty five PhD students who attended the three-day residential GRADnet summer school at IBM's Hursley Laboratory in early July. The school focused on the skills required for effective leadership and ways to maximise the impact of research.

The major benefit I found was that of exposure. I also gained a lot from meeting different companies and industries and from hearing their views and ideas. Additionally I learnt about the importance of obtaining transferrable skills, leadership skills and how to sell myself. The critical idea I took away is how very important it is to have impact and the different ways to make an impact.

I enjoyed the Hackathon and Strategic Leadership challenges and the other team exercises including building a trebuchet from garden canes. I also benefited from mixing with new people plus understanding ways to effectively use the skills of other team members to get an output. I thoroughly enjoyed the seminars and the practical sessions as well and learnt about the importance of time management in tasks. I found it brain tasking and really used my brain throughout the 3 days.

I was pleased to have been presented the GRADnet Teamwork and Leadership Award by Sir Bill Wakeham.



Adenike George
PhD at University of Hertfordshire

GRADnet

NEWS FROM THE SOUTH EAST ENGLAND PHYSICS GRADUATE SCHOOL

Issue 3: Autumn 2015

Careers: academia or industry?

Last September we launched the GRADnet Employer Engagement Programme offering placements, mentoring, site visits and networking events to PGRs across SEPnet partner universities. The aim of the programme is to offer you an insight into careers beyond academia and access to employer engagement opportunities and networking events to help develop your industry contacts and employability skills.

Highly skilled science and technology graduates are in demand in many sectors including space, energy, health, defence, engineering and advanced manufacturing. Physics graduates and postgraduates can apply their skills and knowledge of key technologies - satellite, robotics, digital etc across a range of sectors and industries. Skilled data scientists are in great demand on the European job market currently and PhDs with analytical backgrounds make excellent data scientists. To find out more about the benefits of becoming a data science ambassador and career opportunities, visit ambassadors@pivigo.com.

Whether you decide to pursue a career in academia or industry, gaining an industrial experience is a great way of raising awareness of different types of roles and working environments. You can read about some of the placement experiences and other GRADnet activities which PGRs are involved with below and on the VRE.



We welcome your feedback and thoughts on what activities, events and employer engagement opportunities would be of interest to you!

Veronica Benson
SEPnet Director of Employer Liaison

Site visits: opening your eyes to careers

Earlier this year I had the amazing experience of visiting two renowned scientific research facilities in the UK, the National Physical Laboratory (NPL) and the Rutherford Appleton Laboratory (RAL).



'...the opportunity to visit large employers performing world leading research is truly irreplaceable.'

At NPL I took the chance to attend talks on the cutting edge research being performed there and visited a number of diverse laboratories. At RAL I had the opportunity to visit their world leading laboratories - the RAL Space facilities and the Diamond Light Source synchrotron. I also had the time to be fully immersed in the whole host of interactive experiences on display, including walking around in virtual environments with 3D goggles!

As a final year PhD student exploring the possibilities for my next career steps, the opportunity to visit large employers performing world leading research is truly irreplaceable. It's one thing to read the website, look at the pictures and study the research papers but it's a completely different experience to actually stand there, in the lab, and talk one to one with the researchers working there every day. As well as this, you undoubtedly learn more than you can anticipate, in areas of research you may not have known even existed. In one laboratory I was amazed to see technology similar to what I developed during my PhD for a lab environment being used in satellites! This opened my eyes to career prospects I would have never known existed if it wasn't for the chance to travel and visit both facilities.

Darren De Motte
Ion Quantum Technology Group
Department of Physics and Astronomy
University of Sussex

For opportunities to visit Diamond Light Source and the Harwell Campus, visit their websites:
www.diamond.ac.uk/Public/VisitUs.html
www.harwellcampus.com/come-to-harwell/open-days/



Working together to deliver excellence in Physics

GRADnet
South East Physics Network

SEPnet SME Collaborative Research Projects for Physics PhDs

STFC Innovation & Partnership Fellows, Colin Hayhurst (at Sussex) and Gill Prosser (at Portsmouth), are exploring interest in Collaborative PhDs. These would enable industry and academics to work together in a cost-effective way on research to address technology problems. Two initial fields have been chosen: *Numerical Modelling and Detectors*. Small groups of SMEs (small and medium-sized enterprises), academics and PhD students will form consortia to work on projects defined and guided by the SME group and academics. PhDs are planned to start in October 2016.

This innovative approach to research collaboration will allow SMEs to directly access PhD research and students at an affordable price; and will offer PhD students the opportunity to engage in research of interest to industry, broaden their employer engagement experience and be part of a supportive team of fellow students.

For more information, visit:
<http://sepnetphd.instagram.com/>

or contact:

Colin Hayhurst (numerical modelling)
c.j.hayhurst@sussex.ac.uk

Gill Prosser (detectors)
Gill.Prosser@port.ac.uk

Mentoring for routes into academia or industry

In June this year Surrey's Research Development Programme in collaboration with SEPnet launched a pilot PGR/employer mentoring scheme for GRADnet students aimed at matching PhD students with an employer mentor to help prepare them better for the transition to work outside higher education.

So far, nine students have been matched with employers from organisations such as NPL, Micron Semiconductor and Oxford Instruments and we hope to generate more mentoring opportunities over time.

So what is mentoring? A mentor is a person who acts as guide/advisor to someone else; typically where the mentee is less experienced. Employer mentors can offer support and guidance with things like:

- Getting an insight into a particular area of work
- Thinking about whether to stay in academia after your PhD or move into commerce/industry/business
- Developing your professional network
- Learning about an organisation/company and its culture.



Eight of the nine students are receiving 'ongoing mentoring' - a minimum of 3-4 points of contact over an academic year following an initial face to face meeting. Mentoring can be undertaken face to face, by email, phone or Skype, depending on where your mentor is based. You can be at ANY stage of your PhD to take part.

Benefits include:

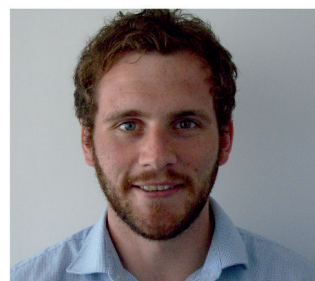
- 1:1 guidance on your career/professional development
- insight into what other doctorates have done and how they got there
- networking opportunities
- collaboration potential
- the chance to visit the employer's premises/view a lab etc.

It's early days so far, but positive feedback includes comments like: *'very valuable to have a sounding board outside of the usual bubble'* and *'I have learnt how to make myself appear special in the eyes of employers and to find ways to connect with industries and companies'*.

If you want to find out more about how to find a suitable mentor, email Veronica Benson
veronica.benson@sepnet.ac.uk

Placements: from computational modelling at OU to design engineering tools for overhead line electrification systems at Network Rail

Student: Jonathan Keelan, The Open University
Placement: Network Rail
Role: Researcher



'Don't be afraid to apply for placements outside of your current research. If you have the necessary skills to perform the placement, and it interests you, go for it.'

What is the subject of your PhD?

Computational modelling of arterial trees and embolic stroke.

Why did you decide to do a placement?

I had no experience working in industry. Coming to the end of my PhD, there seemed like a large gap in my knowledge of the available options and an industry placement seemed like the perfect opportunity to help inform any future decisions.

Describe a typical day on placement

Work involved reading a lot of academic papers and technical documents, as well as finding, downloading, testing and evaluating a plethora of software packages. If I had any problems or questions, my line manager was always available. Team meetings were a round table affair where everyone would keep each other up to date on their work. This was incredibly useful and something that would be interesting to try within our own department. At the end of the day I would write up short summaries of any papers or software I'd completed reading or installing. Towards the end, I began writing up the report which was the primary goal of the internship.

What advice would you give to a PGR student who might be interested in seeking a placement?

Don't be afraid to apply for placements outside of your current research. If you have the necessary skills to perform the placement, and it interests you, go for it. The change will be refreshing and you'll gain some experience that will be useful when you finish your PhD.

Placements: from neutrino detection at QML to designing rockets at Tranquility Aerospace

Student: Ela Poplawska, Queen Mary University of London
Placement: Tranquility Aerospace Ltd
Role: Software Electronic System Programmer

What is the subject of your PhD?

Particle Physics, Neutrinos: "Study of the neutral current interaction with a π^0 in a final state in the ND280 detector of the T2K experiment".

Why did you decide to do a placement?

I wanted to learn about the space industry.

Describe a typical day on placement:

Every day was different depending on a given task. The only routine was that each day started with coffee, then I would discuss my plans with Ray. This involved brainstorming sessions, programming, electronics hardware assembly and system design. This was followed by connection of the new sensors and communication devices revising many ideas in terms of rocket design and architecture of the data collection and analysis framework.

What skills and knowledge do you feel you have learned during the placement?

I have learnt about the importance of networking and discussing aspects of the ongoing project with other industry representatives. I was encouraged to learn new software languages including MATLAB and Arduino Libraries and develop Excel macros.

How do you think doing a placement has benefited you for the future?

It has shown me how PhD skills can be transformed and used within industry or a commercial environment. This has helped me increase my confidence for future job searches. I have met a number of new people and observed how business communication works.

What advice would you give to a PGR student who might be interested in seeking a placement?

Go ahead, do not hesitate. Work out your accommodation and travelling plans before the beginning of your placement. It's far more relaxing than PhD work!



'It showed me how PhD skills can be transformed and used within an industry or commercial environment.'

NExT Institute PhD Workshop

The fifth NExT PhD workshop in June was one of a series of workshops for research students and staff of the NExT Institute and other particle physics PhD students in the UK. Its objectives were to provide training for research students and to enhance the participants' research. The scientific programme was evolved from, and closely linked to, the research activities of the NExT nodes and consisted of a series of extensive lectures, including: Higgs Theory, Higgs Measurements at the LHC, Effective Field Theories, Beyond Minimal SUSY, Beyond WIMP Dark Matter, Cosmology/Astrophysics and the LHC, Statistics, Higgs Physics at the (I)LC.

The workshops also featured two SEPnet Careers sessions. As part of the first session participants had the opportunity to practise their networking skills and prepare questions for the employer panel session.

'I think it was very useful. Since most of us have no idea where we are going or how we are going to get there, I think it is great for students to hear the real life experiences of people who used to be in our situation and are now in a vastly different place.'
Dermot O'Brien, PhD, University of Southampton.

Clare Bodimeade
SEPnet Employer Engagement
University of Southampton