Topical Research Meeting on Hybrid Quantum Systems

16 – 18 December 2014
National College for Teaching and Leadership,
Nottingham, UK

http://quantumsystems.iopconfs.org

Organised by the IOP Quantum Optics, Quantum Information
and Quantum Control Group
Contacts

General organisation

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Organised by IOP Quantum Optics, Quantum Information and Quantum Control Group

Gratefully supported by Midlands Ultracold Atom Research Centre, UCL Quantum Science and Technology Institute and EPSRC

Co-sponsored by the European Physical Society (EPS)

Organising committee

Professor Mark Fromhold, University of Nottingham, UK (Chair)
Professor Ed Hinds, Imperial College London, UK (Chair)

Dr Silvia Bergamini, The Open University, UK
Dr Daniel Browne, University College London, UK
Professor Barry Garraway, University of Sussex, UK
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Professor John Rarity, University of Bristol, UK
Dr Shashank Virmani, Brunel University London, UK
Dr Kevin Weatherill, Durham University, UK
Dr Nicola Wilkin, University of Birmingham, UK

Disclaimer
The Institute of Physics, National College for Teaching and Leadership and their approved representatives cannot take responsibility for any accident, loss or damage to participants or their property during the conference.

Complaints
We hope that your time at the conference is enjoyable. However, should you encounter any problems during your stay, please report them to the conference registration desk as soon as possible. The conference team will make every effort to rectify any issues as soon as possible.
Location
The conference will be held at the Learning and Conference Centre part of the National College for Teaching and Leadership.

Venue address:
Learning and Conference Centre
National College for Teaching and Leadership
Triumph Road
Nottingham
NG8 1DH

For information about the venue, please visit their website: www.education.gov.uk/nationalcollege/learning-and-conference-centre

Delegates should enter the building via main entrance on Triumph Road (image below), check-in for accommodation is available at the reception in the main Foyer area.

A map of the site highlighting the location and driving routes can be found appended at the back of this handbook.

Accommodation
Delegates that have pre-booked on-site accommodation through online registration will automatically be allocated accommodation at the Learning and Conference Centre. Bedrooms are en-suite and benefit from desk space, hospitality trays, hairdryers, complimentary wi-fi and televisions. All rooms are single occupancy only, if you would like to book a room for double occupancy please e-mail joanne.hemstock@iop.org.

Accommodation includes a three course dinner which is served in the Restaurant at set times during the conference programme and full English breakfast which is served in the Restaurant between 07:00 – 09:00.

If you are a non-residential delegate but would like to join the evening dinners on the 16 and 17 December, please e-mail joanne.hemstock@iop.org.

Bedrooms will be available from 15:00 on arrival and should be vacated by 09:30 on the day of departure. Please check in and out at the main reception desk which is manned 24 hours a day.
Tourist information
World-renowned as the home of Robin Hood, Nottinghamshire is located in the heart of the UK. Nottingham started in the 6th century as a small Saxon settlement, owned by ‘Snotta’. In 1067 William the Conqueror built a wooden castle to guard Nottingham, and the town grew rapidly after the Norman Conquest. During the Industrial Revolution much of Nottingham’s prosperity was founded on the textile industry, and it became an internationally important centre of lace manufacture. Today Nottingham is best known for its castle, and tales of Robin Hood. It is also part of the UK’s core cities group, those cities that have been identified by the Government as one of the powerhouses of the economy.

For more information, please visit the Nottinghamshire Tourist Information website at http://www.experiencenottinghamshire.com

Useful local information

• **Money** - Britain’s currency is the pound sterling (£). There are cash machines throughout Oxford and major credit cards are accepted.

• **Electricity** - British electrical standards are 50Hz 230 volts, so some North American and European electrical devices may require converters; all will require plug adapters (please bring your own to the conference).

• **Medical services** - Some medicines are available over the counter from pharmacists. Medical advice is available through the 24-hour NHS 111 service (dial 111 – see [http://www.nhs.uk/NHSEngland/AboutNHSservices/EmergencyandUrgentCareservices/Pages/NHS-111.aspx](http://www.nhs.uk/NHSEngland/AboutNHSservices/EmergencyandUrgentCareservices/Pages/NHS-111.aspx)). In case of an immediate, life-threatening medical emergency dial 999 and ask for the ambulance service.

• **Emergencies** - Visitors should be aware of their personal safety. In an emergency, the police, fire or ambulance services can be reached from any phone by dialling 999.

Travel

The Learning and Conference Centre is centrally located one mile outside of Nottingham city centre.

**By air**
East Midlands Airport ([www.eastmidlandsairport.com](http://www.eastmidlandsairport.com)) is approximately 10 miles south of Nottingham, just off junctions 23A/24 of the M1 motorway. There is a taxi rank on the terminal forecourt with taxis normally available 24 hours. The journey by taxi from the airport costs approximately £23 and takes about 30 minutes.

**By train**
Nottingham railway station is close to the city centre, for information on train times contact National Rail Enquiries ([www.nationalrail.co.uk](http://www.nationalrail.co.uk); tel: +44 (0)8457 484950). There are taxi ranks throughout the city and immediately adjacent to the main railway and bus stations. The journey by taxi from the railway station costs approximately £7 and takes about 15 minutes.

**By coach**
Nottingham’s Broadmarsh bus station has express coach services to and from London, Edinburgh and many other UK cities. The bus station is only a few minutes’ walk from the city centre and the railway station. For coach travel information please visit [www.nationalexpress.com](http://www.nationalexpress.com).
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By car
If you are using satellite navigation, please enter the post code NG7 2TU, or Triumph Road.

From the south: Leave the M1 at Junction 25 taking the A52 to Nottingham. After five miles you will come to the A6514 (Middleton Boulevard) roundabout. Go straight across (this becomes Derby Road). On your right you will pass the Queen’s Medical Centre. About 1 mile past the roundabout turn left at the traffic lights, onto Triumph Road (HA Fox Jaguar Garage is on the corner). The venue is situated on the left after half a mile.

From the north: Leave the M1 at Junction 26 taking the A610 to Nottingham. After approximately three miles turn right on to the A6514, Western Boulevard. Continue for approximately two miles before turning left on to the A6200, Derby Road. On your right you will pass the Queen’s Medical Centre. About 1 mile past the roundabout turn left at the traffic lights, onto Triumph Road (HA Fox Jaguar Garage is on the corner). The venue is situated on the left after half a mile.

You can plan your route online using one of the free route planners - examples are The AA (www.theaa.com) or The RAC (www.rac.co.uk).

Parking
There is limited car parking on site with CCTV coverage, floodlighting and designated spaces for disabled people. A daily charge of £3 will apply to all non-permit holders who park on site. **Overnight residential guests and delegates on Day Delegate or 24hour Delegate packages only, will be excluded from this charge however they will still need to collect a barrier token from reception prior to exit.**

Taxis
Trent Cars: +44 (0)115 950 5050
Fastlane Cabs: +44 (0)115 9501 501 / +44 (0)115 9704 000

Visas
Citizens of the European Union do not need a visa to enter Britain. If you are from any other country, find out about visa requirements before you travel by visiting http://www.ukba.homeoffice.gov.uk/visas-immigration/

Registration
Early registration on Tuesday 16 December will be located in the Central Atrium on the ground floor of the Learning and Conference Centre. Registration on all other days will be located in the West Atrium on the ground floor. Times are as follows:

<table>
<thead>
<tr>
<th>Date</th>
<th>Times</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Tuesday 16 December</td>
<td>16:00 - 19:00</td>
<td>Central Atrium</td>
</tr>
<tr>
<td>Wednesday 17 December</td>
<td>08:00 – 20:00</td>
<td>West Atrium</td>
</tr>
<tr>
<td>Thursday 18 December</td>
<td>08:30 – 16:00</td>
<td>West Atrium</td>
</tr>
</tbody>
</table>

On arrival, each participant will receive a delegate pack containing a pen and pad, a programme and a badge. Please wear your badge at all times because this will help with security, catering and enable you to identify your fellow delegates. Replacement badges can be issued at the registration desk. On your departure, please return your badge to the registration desk so that it can be recycled.

Messages
A message board will be placed near the registration desk. Participants should check the board for messages as an attempt to locate participants will only be made in the case of an emergency. During registration times, messages can be left by email to joanne.hemstock@iop.org or by telephone to +44 (0)7884 268232
**Payment**
The organiser reserves the right to refuse admission to any participant who has failed to pay their registration fee in full prior to the start of the event.

**Venue facilities**

**Internet**
WiFi access is freely available throughout the venue and bedrooms. The login details are as follows;

Network: BT Open zone  
Password: Green 2468

**Cloakroom**
The venue does not facilitate a manned cloakroom. A coat rail will be available near the IOP registration desk. A luggage storage room will also be available throughout the conference in the Central Atrium. All goods left in these areas are left at the owner’s risk and neither the IOP nor the National College for Teaching and Leadership accept any liability for any loss or damage to personal goods.

**Prayer room**
There isn’t a dedicated prayer room in the venue, so anyone wishing to make use of a meeting room facility should make a request to the IOP registration desk and the IOP staff will direct delegates accordingly.

**Local amenities**
The venue is located approximately 5 minute walk away from Derby Road where you will find a local supermarket and ATM/Cash machine.

**Catering**
Refreshments and lunches are included in the registration fee and are served at set times during the conference programme. Dinners are available for residential and pre-booked delegates only.

<table>
<thead>
<tr>
<th>Tuesday 16 December</th>
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</thead>
<tbody>
<tr>
<td>Welcome reception</td>
<td>18:00 – 19:00</td>
<td>Central Atrium</td>
</tr>
<tr>
<td>Dinner (residential and pre-booked delegates only)</td>
<td>19:00</td>
<td>Restaurant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wednesday 17 December</th>
<th>Times</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast (residential delegates only)</td>
<td>07:00 – 09:00</td>
<td>Restaurant</td>
</tr>
<tr>
<td>Morning refreshment break</td>
<td>10:40 – 11:20</td>
<td>West Atrium</td>
</tr>
<tr>
<td>Lunch</td>
<td>13:00 – 14:00</td>
<td>West Atrium</td>
</tr>
<tr>
<td>Afternoon refreshment break</td>
<td>16:00 – 16:40</td>
<td>West Atrium</td>
</tr>
<tr>
<td>Drinks reception</td>
<td>19:30 – 20:00</td>
<td>West Atrium</td>
</tr>
<tr>
<td>Dinner (residential and pre-booked delegates only)</td>
<td>20:00</td>
<td>Restaurant</td>
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</tbody>
</table>

There is also a cash bar facility on site open 17:30 – 23:00.
Dietary requirements
Participants with special dietary requirements are asked to notify the conference office by e-mail prior to their arrival if they have not already done so when registering. Those with special dietary requirements other than vegetarian are asked to make themselves known to the catering team. It will not be possible to provide an alternative menu unless prior notification has been received.

Please note following statement from the National College for Teaching and Leadership catering supplier, Sodexo; We understand that food allergies present a serious problem for some people. Food products with allergens are stored and handled in the same kitchen, storage and preparation areas as those without allergens. While Sodexo takes all reasonable precautions to prevent cross-contamination of food products, we cannot guarantee that trace amounts of known allergens remain absent from food products on service. If you require further information on the allergen content of our foods please e-mail joanne.hemstock@iop.org or ask a member of the catering staff on-site.

Information for presenters

Oral presentations
The main lecture theatre offers in-built AV presentation facilities supported by dedicated on-site technicians. The lecture theatre is equipped with the following audio-visual equipment:

- Data projector and screen
- PC or laptop with Windows XP
- Remote mouse/laser pointer
- Lectern and microphone
- Lapel and/or hand-held radio microphones

Speakers are requested to bring their presentation on a USB memory stick in either Office 2010 or .pdf format and preload it onto the PC/laptop located in the lecture theatre. Speakers should save their presentation into the appropriate pre-named session folders pre-set on the desktop and files should be saved by speakers surname and initial. To optimise compatibility, particularly for the inclusion of multimedia components, speakers should include the original files so that it can be re-embedded if necessary. Direct connection of personal laptops (with set up in the break prior to the corresponding session) is an acceptable but not preferred alternative. Mac users should ensure that they bring the correct connection cable (VGA) with them.

The lecture theatre is reasonably large, and speakers should use a minimum 16-point font size in PowerPoint slides to ensure legibility. Presenters are asked to prepare their talks to match the allocated times which will be rigidly enforced.

Poster presenters
Posters will be on display in the West Atrium throughout the conference. If you are presenting a poster please ensure that you display your poster on the board number that matches your poster number in the programme.

Posters must be no larger than A0 in size (118.9 x 84.1cm / 46.8 x 33.1 inches), in a portrait format. If your poster does not fit within these dimensions, we cannot guarantee it will be displayed. Fixing material will be supplied.

Presenters should mount their posters between 16:00 and 19:00 on Tuesday 16 December or between 08:30 and 10:00 on Wednesday 17 December. All posters must be removed by 16:00 on Thursday 18 December.
Exhibition
A table top exhibition will be held in the West Atirum on Wednesday 17 and Thursday 18 December. Please take the time to talk to the exhibitors should you have any enquiries.

Stand 1 - Lambda Photometrics
www.lambdaphoto.co.uk

Lambda is a leading supplier of characterisation, measurement and analysis equipment. Lambda’s scientists and engineers provide expert technical advice, helping you improve product discovery, product development and productivity. Our consultative approach will ensure you receive the best advice and get the best solution for your needs.

Stand 2 - Newport Spectra-Physics
www.newport.com

Newport is a leading global supplier of advanced technology products and solutions for Scientific Research, Life & Health Science, Aerospace & Defense, Photovoltaics, Industrial Manufacturing, Semiconductors, and Microelectronics markets. Established in 1969, Newport has over 40 years of industry knowledge and expertise across a broad range of technologies allowing the company to continually deliver innovative products in the areas lasers, photonics instrumentation, sub-micron positioning systems, vibration isolation, optical components and subsystems and precision automation to enhance the capabilities and productivity of its customers’ manufacturing, engineering and research applications.

Stand 3 - IOP Publishing
http://ioppublishing.org

IOP Publishing provides a range of journals, magazines, books, websites and services that enable researchers and research organisations to reach the widest possible audience for their research. We combine the culture of a learned society with global reach and highly efficient and effective publishing systems and processes. With offices worldwide, we serve researchers in the physical and related sciences in all parts of the world. IOP Publishing is a wholly owned subsidiary of the Institute of Physics. Any profits generated by IOP Publishing are used by the Institute to support science and scientists.
ColdQuanta focuses on the development of BEC (Bose-Einstein condensate), ultracold atom and cold atom devices and systems, allowing them to be accessible to a wide range of research, education, and industrial institutions. Our products are intended for use in high performance scientific and industrial applications.

Toptica can invent and produce the required instruments for you. We also contribute to the successful development of the ultrafast technology with its newest fibre technology which is outstanding in performance, versatility, robustness, wavelength coverage, reliability, compactness and price. Toptica is a key supplier as well as an ideal partner.

The European Physical Journal (EPJ) is a series of peer-reviewed journals covering the whole spectrum of physics and related interdisciplinary subjects. EPJ is committed to high scientific quality in publishing and is indexed in all main citation databases. EPJ now includes the new Open Access title EPJ Quantum Technology.

Safety and security

Personal property
The National College for Teaching and Leadership and the Institute of Physics do not accept responsibility for the loss of or damage to personal property. Visitors are advised to keep personal possessions with them and lock doors and windows when leaving the bedrooms.

Evacuation policy
If there is an alarm, please leave the building immediately and make your way to the fire assembly point. Delegates should not re-enter the building until the Fire Service or Security team confirms that it is safe to do so. The fire alarm is tested each Monday morning at 09.00am (unless on a bank holiday and the test will occur on a Tuesday at 09.00am), should this occur during your stay you do not need to act unless it continues to sound or you are otherwise instructed.
First aid
There are first aid trained staff available 24 hours a day, please report any incidents to the IOP registration desk or main venue reception.

Security
Venue security staff are on duty 24-hours a day, 7-days a week. Should you need to contact them in an emergency, please report to the main reception in the Central Atrium.

Smoking
In compliance with the current UK legislation, smoking is not permitted within any enclosed area of the venue. The designated smoking area is the external walkway at the rear of the building.

Behaviour and conduct
The Institute of Physics and National College for Teaching and Leadership reserve the right to charge in full for loss or damage to the college. Whilst on the National College for Teaching and Leadership site, all guests should show respect that it is a working environment.

IOP membership
Non-member registrants attending this conference will automatically become affiliate members of the Institute of Physics for 12 months and will receive copies of Physics World. As an affiliate member you will be entitled to attend IOP conferences at the members’ rate for the period of your membership and to use MyIOP – the member-only network.

Full details will be sent to you after the conference. In order to take advantage of this affiliate membership, payment for the conference registration fee must be received in accordance with our payment terms.

Membership of the Institute of Physics is open to all those with an interest in Physics. For further information, please visit http://members.iop.org or e-mail membership@iop.org.
Triumph Road  
Nottingham NG8 1DH

If using satellite navigation, please enter Triumph Road and not postal code.

Tel: 0845 609 0009  
Fax: 0115 872 2001  
Email: enquiries@nationalcollege.org.uk

Public Transport

By Rail  
Nottingham Station  
Approximately 15 minutes by taxi.

By Air  
East Midlands Airport  
Approximately 30 minutes by road.

Locator map