

<http://ipta2014.iopconfs.org>



IPTA 2014 CONFERENCE

Inverse Problems

from Theory to Application (IPTA 2014)

A Conference Celebrating 30 Years
of *Inverse Problems*

26–28 August 2014, At-Bristol



IOP Publishing



Cover image: inspired by the inclusion geometry model from the article
“Numerical analysis of the factorization method for EIT with a piecewise
constant uncertain background” **H Haddar and G Migliorati** 2013
Inverse Problems **29** 065009.



Inverse Problems – from Theory to Application

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Disclaimer

The Institute of Physics, IOP Publishing and At-Bristol accept no responsibility for any accident, loss or damage to participants or their property during the conference.



Inverse Problems – from Theory to Application

Venue

The conference will be held on the top floor of At-Bristol in the Annexe and The Rosalind Franklin rooms. Access to the rooms is through the At-Bristol museum.

At-Bristol

Anchor Road
Harbourside
Bristol
BS1 5DB

<http://www.at-bristol.org.uk/>

A map showing the location of At-Bristol is appended at the back of this document.

Accommodation

A wide selection of accommodation is available within walking distance of At-Bristol. For a list of hotels, visit the venue page at the conference website or any one of the following search engines specialising in accommodation, www.laterooms.com, www.expedia.com or www.hotelrooms.co.uk

Internet access

Free wireless internet access is available for participants.

- WiFi code: 'At-Bristol Events'
- Password: Max-hertz!WE11

Registration

On arrival at At-Bristol, make your way to the conference rooms located on the top floor; a lift is available. The main reception desk, as you enter the building, will be staffed and will be able to direct you. Registration will be open during the following hours:

Tuesday 26 August	08:00-18:00
Wednesday 27 August	08:00-18:00
Thursday 28 August	08:00-18:00

Each participant will receive a delegate pack containing a pen, pad, programme, a USB memory stick with the proceedings and a lapel badge. Abstracts are available in digital form only. You will also receive a ticket for the conference dinner, if pre-booked.

Participants are asked to wear their badge at all times to help with security and enable you to identify your fellow participants. Replacement badges can be issued from the registration desk. On departure, please return your badge to the conference desk to be recycled.



Inverse Problems – from Theory to Application

Catering

The registration fee is inclusive of tea and coffee each day in the morning and afternoon. Tea and coffee will also be available at 08:00 on Tuesday 26 August, only. Times for refreshment breaks are as follows:-

Tuesday 26 August	08:00-09:00	10:35-10:50	15:40-16:10
Wednesday 27 August	-	10:20-10:50	16:05-17:05
Thursday 28 August	-	10:20-10:50	16:05-16:35

Participants will need to make their own arrangements for lunch. A wide selection of restaurants, cafes and bars are located close to At-Bristol. Further information can be found online at <http://visitbristol.co.uk/food-and-drink>

Social programme

The conference dinner will be held on Wednesday 27 August at the riverstation, a short walk from At-Bristol (tickets will be included in delegate packs for those that have pre-booked and paid for a ticket). Dinner will be from 19:30; tickets will be collected at the door.

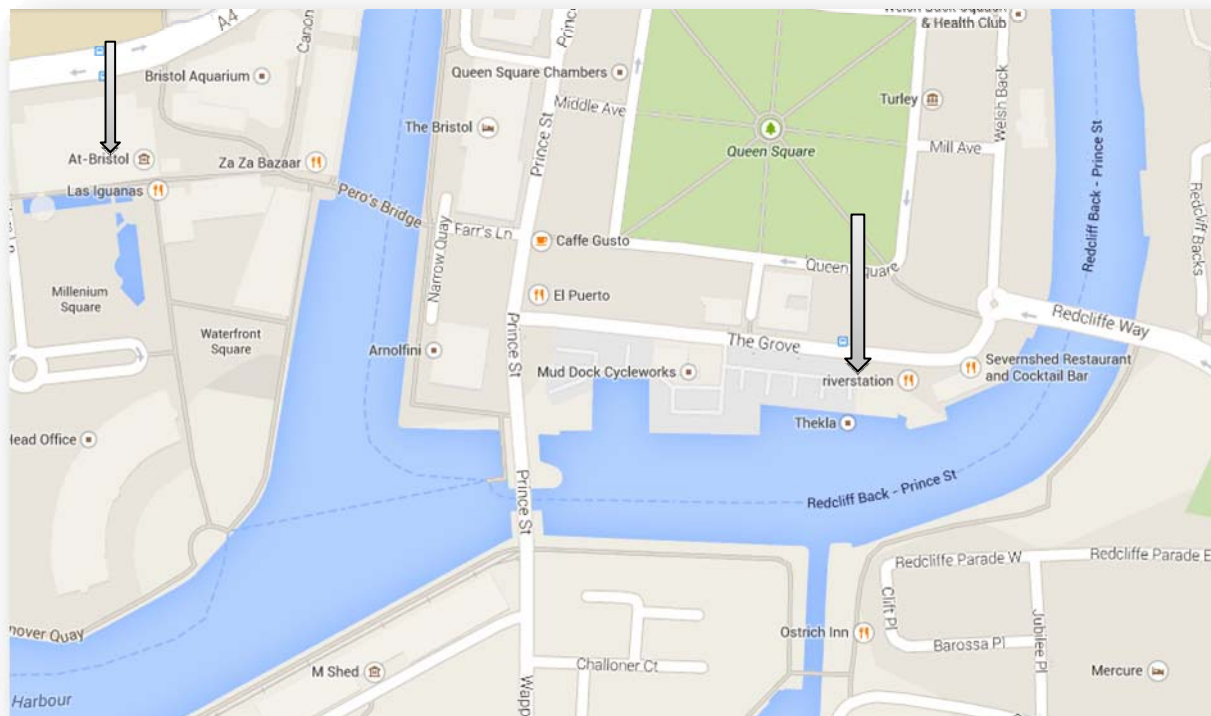
riverstation

The Grove

Bristol

BS1 4RB

www.riverstation.co.uk



Instructions for presenters

Speakers are asked to send their final presentation as a PDF or PowerPoint file prior to the conference by e-mail to claire.garland@iop.org. Please bring a back-up copy on a USB memory stick. If you are unable to send your presentation prior to the conference, please bring it with you on a USB memory stick. You should save the



Inverse Problems – from Theory to Application

presentation into the appropriate pre-named session folders on the desktop. Files should be saved by surname and initial.

To optimise compatibility, particularly for the inclusion of multimedia components, PowerPoint presentations should have been saved using PowerPoint's "Package for CD" facility. Direct connection of personal laptops (with set-up in the break prior to the corresponding session) is an acceptable but not preferred alternative. If presenting from a Macintosh computer, please bring a VGA cable with you. You are reminded that the UK has 3-pin sockets so, if you require a plug adaptor, you should also bring this with you.

The meeting space is reasonably large so speakers should use a minimum 15-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 by session chairs.

Poster presenters

A poster session will be held from 16:05-17:05 on Wednesday 27th August. However, poster presenters are welcome to display their posters from Wednesday lunchtime and leave them up for the rest of the conference. Fixing material will be provided.

Poster size = A0 in portrait format (841 x 1189 mm)

The scientific committee will select the best poster and will award the presenter with the 'Inverse Problems Poster Prize IPTA2014' at the closing ceremony on Thursday 28th August.

Travel

For information on how to get to At-Bristol, visit the travel page on the conference website at <http://ipta2014.iopconfs.org/Travel> or At-Bristol's website at <http://www.at-bristol.org.uk/gettinghere.html>.

Note: discounted rail tickets are available on the First Great Western Service for participants travelling from London to Bristol- for further information see <https://www.firstgreatwestern.co.uk/offers/conferences>

Facilities

A cloakroom is available in the Rosalind Franklin Room.

Toilets are located at the far end of the Rosalind Franklin room through the double doors at the far end. There are two accessible toilets, one at each end of the room.

Safety and emergency procedures

If the fire alarm is activated a loud siren will sound. Please leave via the pink or purple staircase at each end of the room, following the green fire exit signs. At-Bristol staff will guide guests out of the building to the assembly point. The assembly point is on Anchor Square (the cobbled square in front of the At-Bristol building).

Medical services

Some medicines are available over the counter from pharmacists. For medical advice, try NHS direct by telephone on 0845 4647 (24-hour within the UK) or nhsdirect.nhs.uk Reciprocal arrangements with the UK allow residents of some countries to receive free emergency medical treatment. Most doctors' surgeries have a daily drop in hour or go to the Accident and Emergency department at a hospital for emergency treatment.

First aid

If you fall ill or injure yourself during the conference, please report the incident to a member of staff. In case of serious injury, paramedics will be called.



Inverse Problems – from Theory to Application

Emergency services

As in all major cities, 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.

Smoking

In accordance with government legislation smoking is not permitted in any building, temporary enclosed structure or substantially enclosed space outside of buildings. Anyone wishing to smoke during the conference should use the North Terrace. Please note the terrace can become slippery when wet. If in use, please take care.

Payment

The organiser reserves the right to refuse admission to any participants who has failed to pay their registration fee in full prior to the start of the event.

General information

Money

Britain's currency is the pound sterling (£).

Electricity

British electrical standards are 50Hz 230 volts, so some North American and European electrical devices may require converters; all will require plug adapters.

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 the issue as soon as possible.

Plenary speakers

Plenary Lecture 1

Bill Symes (Rice University, USA)

Seismic inverse problems: recent developments in theory and practice

Plenary Lecture 2

Mathias Fink (ESPCI, France)

Wave control in complex media: from time-reversal methods to tunable metasurfaces

Plenary Lecture 3

Inverse Problems Young Researcher Award Winner

Plenary Lecture 4

Otmar Scherzer (University of Vienna, Austria)

Dynamical image analysis and some applications to inverse problems

Plenary Lecture 5

Fioralba Cakoni (University of Delaware, USA)

A qualitative approach to the inverse scattering problem for inhomogeneous media

Plenary Lecture 6

Pierre Sabatier (University of Montpellier II, France)

Emergence of ideas in inverse problems

Plenary Lecture 7

Matti Lassas (University of Helsinki, Finland)

Inverse problems for non-linear wave equations and the Einstein equations

Plenary Lecture 8

Gang Bao (Zhejiang University, China and Michigan State University, USA)

Recent advances in inverse scattering problems

Plenary Lecture 9

Alfred K Louis (Saarland University, Germany)

Regularization: Fighting the lack of Information

Programme

Tuesday 26 August

08:00	Registration		
09:00	Welcome: Alfred K Louis		
09:15	Plenary Lecture 1: Bill Symes Chair: Bill Rundell		
10:10	IOP Talk: Paul Hardaker Chair: Nicola Gulley		
10:35	Coffee Break		
	Room 1	Room 2	Room 3
10:50	M1: Hybrid Medical Imaging Chair: Simon Arridge (University College London (UCL), UK) Jin Keun Seo (Yonsei University, South Korea) Ben Cox (University College London (UCL), UK) Lauri Oksanen (University College London (UCL), UK) John Schotland (University of Michigan, USA)	M2: Asymptotic Expansions Chairs: Marc Bonnet (ENSTA, France) and Houssein Haddar (INRIA Saclay Ile de France/CMAP Ecole Polytechnique, France) Bojan Guzina (University of Minnesota, USA) Ana Carpio (University of Madrid, Spain) Shari Moskow (Drexel University, USA) Mourad Sini (RICAM, Austria)	M3: Inverse Source Problems Chair: Masahiro Yamamoto (University of Tokyo, Japan) Lucie Baudouin (LAAS Toulouse, France) Michael Klibanov (The University of North Carolina at Charlotte, USA) Takashi Takiguchi (National Defense Academy of Japan, Japan) Masahiro Yamamoto (University of Tokyo, Japan)
12:30	Lunch		
13:50	Plenary Lecture 2: Mathias Fink Chair: Simon Arridge		
14:45	Plenary Lecture 3: <i>Inverse Problems</i> Young Researcher Award Winner Chair: Alfred K Louis		
15:40	Coffee Break		
	Room 1	Room 2	Room 3
16:10	M4: Inverse Problems in Industry Chairs: Peter Maass (University of Bremen, Germany) and Ronny Ramlau (RICAM, Austria) Samuli Siltanen (University of Helsinki, Finland) Marta Betcke (University College London (UCL), UK) Andreas Binder (MathConsult) Iwona Piotrowska (Bremen University, Germany)	M5: Tomography Chairs: Bernadette Hahn (Saarland University, Germany) Alvaro R De Pierro (UNICAMP, Brazil) Jürgen Friel (Helmholtz Zentrum München and Technical University Munich, Germany) Bernadette Hahn (Saarland University, Germany) Bill Lionheart (University of Manchester, UK)	M6: Inverse Spectral Problems Chair: Paul Sacks (Iowa State University, USA) Rostyslav Hryniv (Institute for Applied Problems of Mechanics and Mathematics, Lviv, Ukraine, and Institute of Mathematics, The University of Rzeszów, Poland) Chun-Kong Law (National Sun Yat-Sen University, Taiwan) Marco Marletta (University of Cardiff, UK) Drossos Gintides (National Technical University of Athens, Greece)
18:00	Public Lecture: Samuli Siltanen Chair: Nicola Gulley		
19:00	Close of day		

Wednesday 27 August

08:30	Plenary Lecture 4: Otmar Scherzer Chair: Martin Burger		
09:25	Plenary Lecture 5: Fioralba Cakoni Chair: David Colton		
10:20	Coffee Break		
	Room 1	Room 2	Room 3
10:50	<p>M7: Regularization Methods-Theory Chairs: Jin Cheng (Fudan University, China) and Bernd Hofmann (TU Chemnitz, Germany)</p> <p>Stephan W Anzengruber (TU Chemnitz, Germany) Shuai Lu (Fudan University, China) Elena Resmerita (University of Klagenfurt, Austria) Alexandra Smirnova (Georgia State University, USA)</p>	<p>M8: Inverse Problems in Cell Biology Chair: Martin Burger (Muenster University, Germany)</p> <p>Anotida Madzvamuse (University of Sussex, UK) Guido Vitale (Joseph Fourier University, France) Lena Frerking (Muenster University, Germany) Nico Persch (Saarland University, Germany)</p>	<p>M9: Physical Imaging Chair: Dominique Lesselier (Laboratoire des Signaux et Systèmes (CNRS-SUPELEC-UPS), Gif-sur-Yvette, France)</p> <p>Oliver Dorn (University of Manchester, UK) Russell Hewett (MIT, Cambridge, USA) Andrea Massa (University of Trento, Italy) Yu Zhong (A*STAR, Institute of High Performance Computing (IHPC), Singapore)</p>
12:30	Lunch		
	Room 1	Room 2	Room 3
14:00	<p>M10: Inverse Scattering Chair: Houssein Haddar (INRIA Saclay Ile de France/CMAP Ecole Polytechnique, France)</p> <p>Rainer Kress (University of Göttingen, Germany) Roland Griesmaier (University of Leipzig, Germany) David Colton (University of Delaware, USA) Armin Lechleiter (University of Bremen, Germany) Lorenzo Audibert (INRIA and EDF, France)</p>	<p>M11: Inverse Problems for Wave Phenomena Chair: Sergey Kabanikhin (Novosibirsk State University, Russia)</p> <p>Daniel Lesnic (University of Leeds, UK) Sergey Kabanikhin (Novosibirsk State University, Russia) Maxim Shishlenin (Novosibirsk State University, Russia) Oiga Krivorotko (Novosibirsk State University, Russia) Tomas Johansson (EAS, Aston University, UK)</p>	<p>M12: Inverse Boundary Problems Chair: Bill Lionheart (University of Manchester, UK)</p> <p>Teresa Correia (University College London (UCL), UK) Mirza Karamehmedovic (Technical University of Denmark, Denmark) Kim Knudsen (Technical University of Denmark, Denmark) Ville Kolehmainen (University of Eastern Finland, Finland) Pierre Millien (Ecole Normale Supérieure, Paris, France)</p>
16:05	Coffee Break and Poster Session		
17:05	Plenary Lecture 6: Pierre Sabatier Chair: Roy Pike		
18:00	Close of day		
19:30	Conference Dinner: River Station		

Thursday 28 August

08:30	Plenary Lecture 7: Matti Lassas		
09:25	Plenary Lecture 8: Gang Bao Chair: Ming Jiang		
10:20	Coffee Break		
	Room 1	Room 2	Room 3
10:50	<p>M13: Regularization Methods- Algorithms Chairs: Barbara Kaltenbacher (Alpen - Adria Universitaet Klagenfurt, Austria)</p> <p>Christian Clason (University of Duisburg-Essen, Germany) Qinian Jin (Australian National University, Canberra, Australia) Carola-Bibiane Schoenlieb (University of Cambridge, UK) Samuli Siltanen (University of Helsinki, Finland)</p>	<p>M14: Identification Problems using PDEs Chairs: Elena Beretta (Politecnico di Milano, Italy) and Elisa Francini (Universita' di Firenze, Italy)</p> <p>Yves Capdeboscq (University of Oxford, UK) Matteo Santacesaria (Institute Fourier, Universite de Grenoble, France) Edi Rosset (University of Trieste, Italy)</p>	<p>M15: Compressive Sensing Chairs: Jared Tanner (University of Oxford, UK) and Thomas Blumensath (University of Southampton, UK)</p> <p>Mike Davies (University of Edinburgh, UK) Andrew Thompson (Duke University, USA) Pier Luigi Dragotti (Imperial College London, UK) Thomas Blumensath (University of Southampton, UK)</p>
12:30	Lunch		
	Room 1	Room 2	Room 3
14:00	<p>M16: Seismic Imaging Chairs: Tarek Habashy (Schlumberger-Doll Research, USA)</p> <p>Yann Capdeville (University of Nantes, France) Fons ten Kroode (Royal Dutch Shell, Netherlands) Chris Stolk (University of Amsterdam, Netherlands) Justin Tittel Fitz (Purdue University, USA) Ivan Vasconcelos (Schlumberger Gould Research, Cambridge, UK)</p>	<p>M17: Inverse Problems in Astronomy Chair: Mario Bertero (University of Genoa, Italy)</p> <p>Mikko Kaasalainen (Tampere University of Technology, Finland) Céline Theys (University of Nice Sophia Antipolis, France) Marco Prato (University of Modena and Reggio Emilia, Italy) Florent Sureau (CosmoStat Lab, (CEA), France) Jason McEwen (University College London (UCL), UK)</p>	<p>M18: Inverse Statistical Methods Chairs: Tanja Tarvainen (University of Eastern Finland, Finland and UCL, UK)</p> <p>Daniela Calvetti (Case Western Reserve University, USA) Chris L Farmer (University of Oxford, UK) Ville Kolehmainen (University of Eastern Finland, Finland) Klaus Mosegaard (Technical University of Denmark, Denmark) Erkki Somersalo (Case Western Reserve University, USA)</p>
16:05	Coffee Break		
16:35	Plenary Lecture 9: Alfred K Louis Chair: Bill Symes (tbc)		
17:30	Closing Ceremony		

Public Lecture: Samuli Siltanen

Understanding Human Speech

Tuesday 26 August 6.00–7.00 p.m.

Human speech is the most sophisticated and complex means of communication to have ever existed and plays an unparalleled role in today's society.

This public lecture will describe how a technique called glottal inverse filtering (GIF) is being used to perfect synthetic speech.

Through a number of practical demonstrations, Professor Siltanen will explain how the human vocal folds and the mouth and lips combine to create the vowel sound and how GIF can be used to determine the exact mechanisms used by these body parts by simply measuring the signal from spoken sounds.

In this lecture, Professor Siltanen will also describe how an emerging technique, known as electrical impedance tomography (EIT), is being tested as a reliable method for measuring when the voice starts to become overused.

The lecture is free. Delegates do not need to register to attend; however, delegates are required to show their registration badges as we are also expecting external attendees.

IOP Talk: Paul Hardaker

Some things you might not know about the Institute of Physics

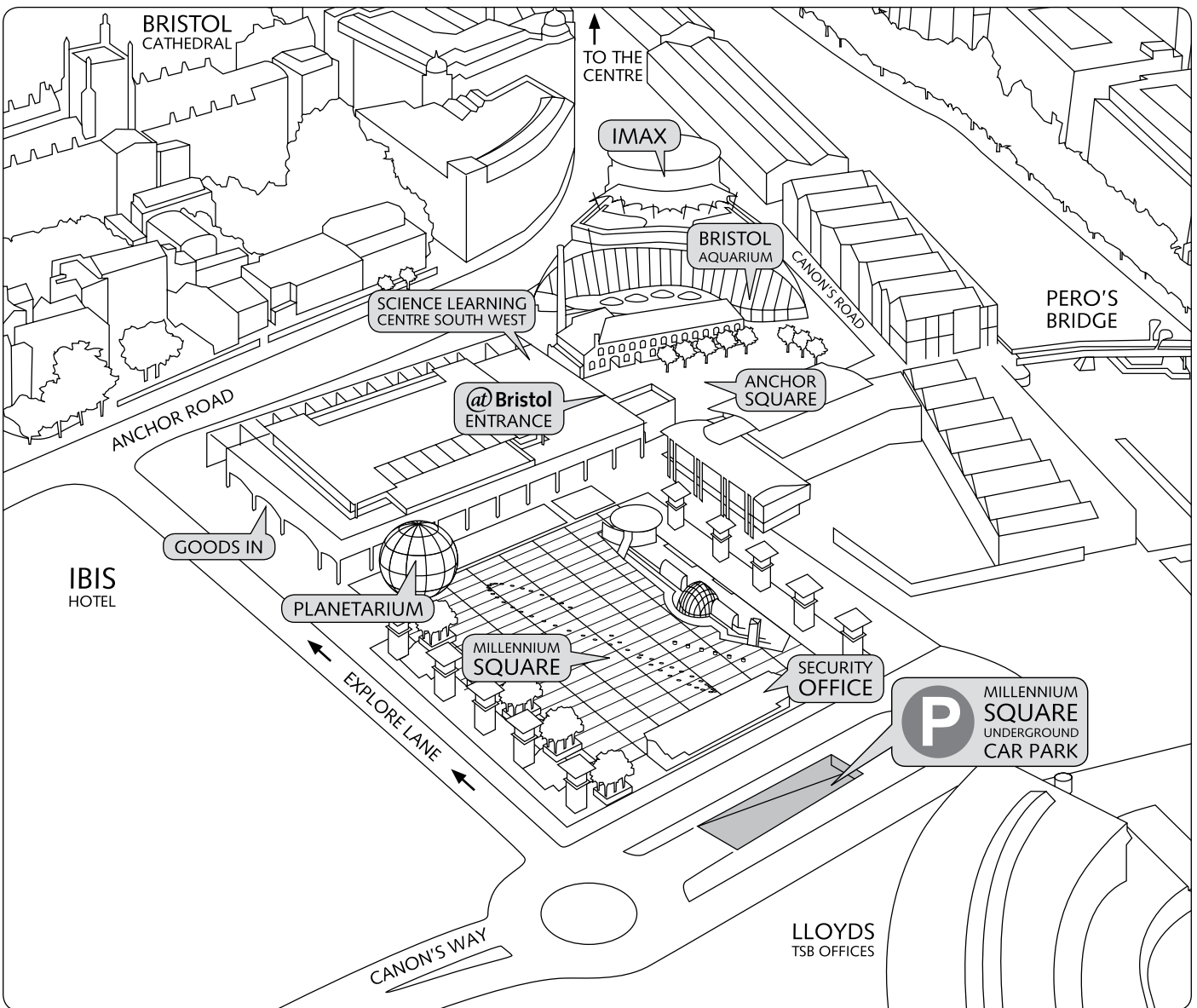
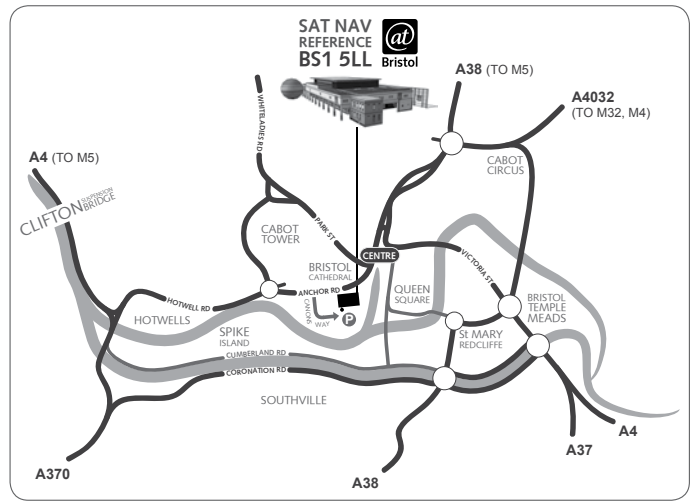
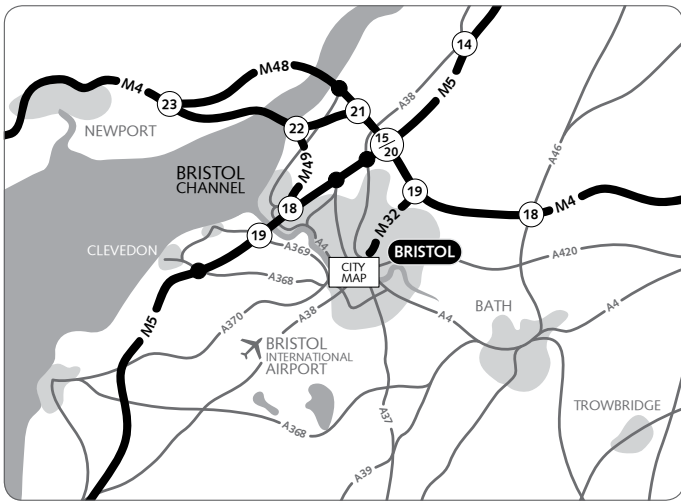
Tuesday 26th August 10.10–10.35 a.m.

The Institute of Physics is one of the largest and longest standing physical societies in world. It is a registered charity delivering a range of services in support of the physics community both in the UK and Ireland, and internationally. The Institute's programme is focused on five main areas: Education, Economy, Society, Discovery and Community. Paul Hardaker's talk will outline the focus for each of these areas and how they will be delivered from the Institute's new home, opening in 2016.



Society publisher

Inverse Problems is published by IOP Publishing, the publisher central to the Institute of Physics (IOP) and a world leader in professional scientific communications. IOP is a not-for-profit society and registered charity that works to advance physics research, application and education, and engages with policymakers and the public to develop awareness and understanding of physics. Any surplus from IOP Publishing goes to supporting science through the activities of the Institute.



@Bristol location map

By car:

Sat Nav ref: BS1 5LL

From M4/M5(N)

Follow the M32 to the end, and follow the city centre signs, then follow signs for the A4 to Anchor Road (or Avonmouth).

From M5(S)

Exit at Jct 18 and follow the A4 to the city centre, then follow signs for @Bristol.

@Bristol is on Anchor Road with car parking at the end of Canon's Way in Millennium Square's secure underground car park.

By train:

The closest train station is Bristol Temple Meads. From there, @Bristol is a 20 minute walk, a 5 minute taxi ride, or a 10 minute bus ride (the 8 or 9 bus to the city centre and then a 5 minute walk along the waterfront).

at-bristol.org.uk

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