

Not seeing is believing 'X-ray specs' effect created in Imperial lab

Abigail Smith Communications

A new optical effect created in an Imperial laboratory may mean solid objects could one day be rendered transparent.

The technique, reported in an advance online publication of *Nature Materials*, has been pioneered by UK and Swiss scientists led by Professor Chris Phillips, in the Department of Physics. It is based on the development of a new material that exploits the way atoms in matter move to make them interact with a laser beam in an entirely new way.

The work relies on a breakthrough which contradicts Einstein's theory that in order for a laser to work, the light-amplifying material it contains, usually a crystal or glass, must be brought to a state known as 'population inversion'. This refers to the condition of the atoms within the material, which must be excited with enough energy to make them emit

rather than absorb light.

Quantum physicists, however, have long predicted that by interfering with the wave-patterns of atoms, light could be amplified without population inversion. This has previously been demonstrated in the atoms of gases but has not before been shown in solids.

In order to make this breakthrough, the team created special crystals, patterned on length scales of only a few billionths of a metre, that behaved like 'artificial atoms'. When light was shone into the crystals, it became entangled with the crystals at a molecular level rather than being absorbed, causing the material to become transparent.

This new transparent material created by the entanglement is made up of molecules that are half matter and half light. This allows light to be amplified without population inversion for the first time in a solid. Professor Phillips says:



Professor Chris Phillips

"This real life 'x-ray specs' effect relies on a property of matter that is usually ignored – that the electrons it contains move in a wave-like way. What we have learnt is how to control these waves directly. The results can be pretty weird at times, but it's very exciting and so fundamental. At the moment the effect can only be produced in a lab under specific conditions but it has the potential to lead to all sorts of new applications."

The team also discovered that as light passes through this new material, it slows right down and could potentially be completely stopped and stored. Professor Phillips believes this has important implications for entirely secure information networks. He says:

"When we send information, for example by sending light pulses down optical fibres, it can only be accessed by making a form of measurement, and these measurements always disturb the information. This technology offers us a means of sending light signals through a network without us having to disturb them ourselves. Now, if confidential information is being spied on, the disturbance shows up straight away and we can nab the eavesdropper with 100% certainty."



Professor Phillips and Dr Mark Frogley find weird effects in solids

The importance of being ethical

Wendy Raeside Communications

HIGH ethical standards are essential in any successful modern institution. That's why Imperial College has unveiled a draft Ethical Policy Framework which it hopes will inform all future activity by staff and students.

The Framework has been put together by Professor Chris Hankin, Pro Rector for Research, who told *Reporter* about its importance:

"The draft Framework covers all aspects of College business from teaching and research to interaction with the local community and industry.

"Ethical behaviour is such a fundamental part of College life that we want to ensure both staff and students have a chance to comment on the Framework before it becomes College code."

Professor Hankin explained that at present the only guidance given to staff was in the Code for Proper Scientific Conduct. This sets down broad ethical principals, but does not cover a number of issues that occur in a modern research context. Two topics not covered, for example, are ghost authorship and outsourcing of research in the



An ethical policy framework for staff and students

developing world.

Once in place, Imperial's new Ethical Policy Framework will not be without teeth and the Pro Rectors will act as guardians. Anyone who feels there has been an infringement would be invited to contact the College Secretary in the first instance who would delegate the case to the appropriate Pro Rector.

"In reality, however," says Professor Hankin, "the Framework should mean little day-to-day difference for our staff and students. The code is all about things we ought

to be doing anyway, but it will be helpful to have explicit guidelines."

Another measure to ensure the College takes ethical behaviour seriously is a new Research Ethics Committee. The College Committee will look at research projects that fall outside current approval processes operated by the NHS Research Ethics Committees and Central Biomedical Services. Projects not covered could include those within the Faculty of Natural Sciences that involve human subjects—such as surveying the effect of pollution on breathing problems.

The new Committee will comprise a 50/50 lay and academic membership and will be chaired by Ram Gidoomal, CBE, a lay member of Imperial College Council. The Committee should be in place within a couple of months.

Professor Hankin is keen that everyone should have a chance to comment on the Ethical Policy Framework and "feel some ownership" of it before it is finalised. A copy of the draft is now available at www.imperial.ac.uk/secretariat/policiesandpublications/otherpolicies/draffethicalpolicyframework

Please spend some time looking at it and send any comments before the end of March to either Professor Hankin or Sibe Mennema (email: c.hankin@imperial.ac.uk or s.mennema@imperial.ac.uk).

IN BRIEF

Child health at Northwick Park

A new paediatric training centre to help train doctors who work with children has been opened at Imperial's Northwick Park Campus. The £300,000 River Island Paediatric Academic Centre for Paediatric and Child Health is the only dedicated centre of its type in north west London. Dr Mitch Blair, Consultant Reader in Paediatrics and Child Health, said: "The centre aims to bring together professionals from a variety of backgrounds to help tackle key child health issues in Harrow, Brent and beyond. These include obesity, accidents and inequalities in access to medical care for disadvantaged families."

Italian recognition for Professor Howard

Professor Howard R. Morris, FRS, Emeritus Professor of Biological Chemistry and Senior Research Investigator, (second from right) has been awarded a honorary degree in biotechnology by the University of Naples, Italy. Professor Morris has been honoured for his outstanding contributions to the development of mass spectrometry including instrumentation and analytical methods for the analysis of large biopolymer molecules. In particular, his peptide mapping, sequencing, disulphide bridge and glycosylation analytical strategies, which are now used worldwide in pharmaceutical and biotechnology product development and characterisation.



Robotic surgeons' creator rewarded

Professor Brian Davies, Emeritus Professor of Medical Robotics and Senior Research Investigator, has been presented with the Institution of Electrical Engineers achievement medal for outstanding contribution to robotic and computer aided surgery systems. Professor Davies founded the Mechatronics in Medicine Group at Imperial in 1988, which now has an international reputation for its work in robotic and computer assisted surgery. He has developed a number of robotic surgery and training systems and achieved a world first when his special purpose robot, PROBOT, was used in human clinical prostatectomy trials in 1991. Since then he has produced a neurosurgery robot, a robot for total knee replacement, training systems for prostate biopsy and for arthroscopic knee replacement, as well as haptic systems for heart surgery and for MR prostate biopsy.

Hot off the press

The winter 2006 edition of *Imperial Matters*, Imperial's alumni magazine, has been published and is being distributed worldwide to more than 85,000 former students. This issue includes an interview with three of Imperial's distinguished academics who are currently Chief Scientific Advisers to the UK government. It also has the usual round up of news and events from Imperial and its alumni associations. Visit www.imperial.ac.uk/alumni/publications/matters to see *Imperial Matters* online or email matters@imperial.ac.uk for a paper copy.



In the next edition...

- Working towards good health—eye tests
- Central Library cheers up its users
- Day in the life of... Minna Ruohonen of the Volunteer Centre

A thermodynamic personality

Laura Gallagher went to meet Dr Erich Müller, Reader in Thermodynamics, who gives his students both an insight into the similarities between molecules and people and a new perspective on what happens in the kitchen, whilst teaching them about thermodynamics.

DR Erich Müller, who came to the Department of Chemical Engineering from Venezuela in March last year, likes to use intriguing examples to breathe life into his thermodynamics lectures. Thermodynamics deals with energy and the way it is transformed, and it is a core course for many studying engineering.

"I open up students' minds and make them ponder, for example why does a metal chair leg feel colder than the fabric seat, but when you measure their temperatures they are both the same?" he said.

"I make lectures a little more light-hearted to get everyone interested. Thermodynamics can be very close to everyday things but some of the textbooks can make it seem abstract. There is no need for it always to look that scary."

Dr Müller compares people with molecules to help his students understand interactions between molecules and visualise how they behave. "Liquids come together because their molecules attract each other, just like human beings, who like to get close together at parties. However, molecules repel each other when they are too close in the same way that no-one wants to be approached by a 'close-talker'."

These individual characteristics account for molecules' collective behaviour. A group of the same type of molecules will stick together, just as a group of people might: "Oil and water don't mix because they have



Do you know why a microwaved pizza cools down quickly but an oven-cooked one can stay warm for a long time?

a very different interaction—they prefer to be amongst molecules similar to each other instead," he said.

"This is like humans and ghettos—in Copenhagen, for example, they tried to integrate the immigrant population with the otherwise rather homogeneous population by placing people in different parts of the city, but the immigrants eventually moved together and formed a ghetto," he explained.

"However, in a mayonnaise, you can have oil and water mixed together in an apparent single phase provided you have a molecule called a surfactant, which is fancied by both and can bring them together. In a similar way, only by including people who can talk to conflicting sides can different groups mix," he continued.

Dr Müller hopes his analogies will not be taken too seriously: "Obviously people are much more complicated than molecules—cartoon science is just a way to help someone understand something. One molecule may form strong bonds to another of the same type but I would hope that your decision to marry would be a little more complex than that!"

Everything you always wanted to know about thermodynamics but were afraid to ask... Dr Muller answers some energy questions

A pizza heated in the microwave cools down quickly whereas an oven-cooked pizza takes a long time to cool down. Why is this?

EM: Microwave energy is 'tuned' to the hydrogen bond frequency. Therefore, things with water (or sugars) receive the energy in a selective way. A pizza is fundamentally bread, so in a microwave you actually only heat the water, which is a minor component. In a conventional oven you are imparting energy to all of the parts of the pizza at the same time.

Touch a chair's metal leg and then its fabric seat and you will agree that the metal is colder. So why are they at exactly the same temperature when you measure their temperatures with a thermometer?

EM: Your body (and fingers) are at a much higher temperature than the chair. What you feel is not the temperature of the object but rather the object extracting some of your energy due to the temperature difference. This is called heat. Metal conducts heat much better than fabric, thus extracting more heat from you than the fabric does, meaning that your skin feels colder after touching the metal.

An urban myth warns that if you heat water (for a cup of tea) in the microwave and place a spoon in it, it will explode in your face. True or false?

EM: True (if, and only if, you were foolish enough to really overheat it). You can actually heat it so much and so fast that it becomes unstable as a liquid (that is it should have boiled, but didn't get the chance). Placing the spoon in is the last straw, causing a violent phase change. Don't try this at home!

An astronaut on the moon holds a thermometer in his hand. What will the thermometer read?

EM: Anything. Since it is in vacuum (it touches nothing), it then has nothing to measure. Therefore the temperature it reads is its own temperature. If it is in direct sunlight, thousands of degrees, in the shade, possibly -200°C

If I could convert all the calories in my daily intake into electricity, how much would it be?

EM: Not much, barely enough to keep a small light bulb on. Typical daily intake is 2,500 calories, roughly equal to 10 MJ/day, equal to 120 Watts. No wonder you have to eat to have really brilliant ideas.

50 not out

Wendy Raeside Communications

Cheating slightly this month, *50 not out* looks at how a childhood love of plants has turned into a lifetime's labour for Jim Harden. Jim, Head Gardener at Wye, has worked at the campus for almost half a century.

JIM joined the gardening team in 1958 as an apprentice at the age of 15 after showing an early aptitude for botany.

"I liked working with plants at school and knew that I didn't want to follow my dad and brothers into farming. A job came up at Wye and I've been here ever since."

In his first years, Jim, now aged 62, was mainly based in the campus' tropical glasshouses. "In those days," he says, "we raised all the plants for the campus gardens in the glasshouses."

At that time, the college at Wye specialised in agriculture and horticulture with around 250 students living on campus. Jim particularly enjoyed helping with student practicals twice a week.

The workload for Jim and his team increased in the late 1960s as the woodlands and sports grounds were added to their list of places to look after. He remembers that Commemoration was a particularly busy time of year. "There was always a big fuss on graduation day—everything in the gardens had to be absolutely spotless."

Jim also remembers a long-standing feature of Wye campus—the college tortoise. Archimedes, as he was known, lived by the Parlour and was a student mascot for many years. His fame even extended to being presented to Queen Elizabeth The Queen Mother during her visit in 1958.

In 1985, Jim was appointed Head Gardener and witnessed the winding down of many commercial aspects of horticulture at the College—including pick your own fruit and sales of plants.

Among the most memorable events for Jim was the great hurricane of 1987, which caused immense damage around the campus. Jim remembers 20 oak trees at Withersdane "just flopping over" and the enormous clean-up afterwards to clear roads and paths.

Fortunately, however, the oldest tree on campus—a 200 year-old mulberry at Withersdane—survived the winds and can still be seen beside the herb garden today.

Jim's lifetime interest in the college has extended to other members of his family—his



Jim Harden

wife Sara has worked for the Distance Learning Programme for the past 10 years and both his children—son Grant and daughter Emma—completed work experience at the college during their last years at school.

Jim lives close to the campus, at nearby Bilting. Outside work, he is a keen cricketer and, as a youth, was a member of the Kent Under 16 and Under 19 squads. Nowadays, he doesn't play so much—joining the league side for Hythe Portex occasionally—but he does enjoy a round of golf.

He also spends much of his spare time on his own quarter-acre garden at home but, as at work, prefers tending flowers to looking after the trees. "I am not a woodsman at heart," he says, "I have always enjoyed flowering trees."

Jim has so far served the College for 47 years and will have notched up 50 by the time of his retirement in three years' time. His outstanding long service has already received several recognitions—including a tankard and Long Service Award from the Kent Show, a Long Service Medal from the Royal Horticultural Society and a National Gardens Award to mark 40 years.

Jim continues to enjoy his work and is looking forward to further accolades when he hits the half-century.

Archive corner

Anne Barrett Archives and Corporate Records

Nineteenth century ammeter

EXTENSIVE collaborative work in the late nineteenth century between Professors William Edward Ayrton (1847–1908) and John Perry (1850–1920) led to the development and manufacture of the ammeter now in possession of Imperial's archives.

An ammeter is designed to measure the flow of electric current. This particular ammeter was made in November 1883 during Ayrton and Perry's most prolific years. In 1880, they devised the Permanent Magnet Ammeter and by 1883 they had devised a second form, the Magnifying Spring Ammeter.

Differences in design between ammeters are dependent on whether it is intended to measure the direction of the current as well as its strength. The materials used will also affect the instrument's performance as it becomes part of the circuit it is intended to measure.

Having met in Japan, Ayrton and Perry were working at the City and Guilds Technical College (now part of Imperial College) when the ammeter was developed. Advances in ammeter design at the time reflected the growth in high voltage uses of electricity, advocated by Ayrton himself. Ayrton and



An ammeter, made in 1883 and designed to measure the flow of electric current, has its roots at Imperial

Perry also collaborated on many other forms of measuring electricity, as well as on the development of the electric tricycle and a surface-contact system for electric railways.

The text inside the lid of the instrument reads:

Ammeter No 301
1° deflection = 1.8 Amperes throughout the scale
Resistance = 0.0008ohm at 13°C
Signed Ayrton and Perry
13/11/83

Archive Corner Quiz winners are:

1st prize, Simon Archer, Division of Biology
2nd prize, Helen Kershaw, Library
3rd prize, Norman Smith, Civil Engineering

New head for the Department of Materials

Laura Gallagher Communications

Professor Bill Lee is the new head of the Department of Materials, having joined Imperial in January from the University of Sheffield, where he was Professor of Ceramic Science and Engineering. Here, he tells *Reporter* about what led him to academia, materials and Imperial—and how he is finding his new life here.

What made you decide to become an academic?

I liked studying. My family tell what I hope is an apocryphal story of me going to a birthday party when I was seven, taking my homework along, and actually doing it during the party.

How did you become interested in materials science? What do you think makes it an exciting subject?

I enjoyed science and maths at school (although I was better at the arts) and felt I would get a better job studying them, than English or history. I did an undergraduate degree in physical metallurgy, moved to ceramics for my PhD and never went back. However, all the principles I learned as an undergraduate applied to metals as much as

to ceramics. I enjoyed the fact that some of it is very challenging. Things like dislocation theory, space groups and ternary phase diagrams really tested me as a student; I get very frustrated if I cannot understand something and work at it until I do.

The study of materials is exciting as it requires knowledge of a broad range of subjects from processing (actually making something useful) to understanding properties (all types, such as mechanical, electrical, thermal and optical) and structure (which might be macrostructure, microstructure, defect structure or crystal structure). You have to know a lot of physics, chemistry, maths and engineering to do materials. I think we are Jacks of all trades and masters of all too! You also get to work in multidisciplinary teams spanning engineering, physical and biosciences. The future is interdisciplinary research involving such teams as those in the London Centre for Nanotechnology, and this is demonstrated by the Energy Futures initiatives at the College.

Why did you want to join Imperial?

The Department of Materials has a long and distinguished history, with great staff and students. It is relatively small in academic and staff numbers by Imperial standards but is the UK's largest materials department in



terms of undergraduates. This was a chance to work on expanding the Department's research effort and extending links and collaborations with all other departments, while maintaining the size and quality of the teaching side.

What do you think of the College so far? What differences have you noticed between here and Sheffield, both in terms of living in different cities and in terms of your work?

The College is clearly investing enormous sums in improving the buildings and infrastructure, which is impressive. We are also bringing in very high quality people which shows long term ambition and planning. The quality of the people and facilities across the College is fantastic and another reason I came. I can't compare life in Sheffield and London much as yet, as I am still living in the Peak District and commuting down Mondays and going back Fridays. Hopefully, this will get sorted soon as I am not too happy about seeing my wife, Jacky, and daughter, Alex, who is 6, only at weekends.

What's the most challenging thing about your new role?

Worrying about money, people and space while trying to retain a research and teaching profile.

What's the best thing about your new role?

Worrying about money, people and space while trying to retain a research and teaching profile...

How do you relax after a hard day running the Department?

I eat, drink and fall asleep, usually but not always in that order. I am more of a morning person and usually get up early to get some exercise such as running or swimming.

Multi-tasking researchers translate between disciplines

Abigail Smith Communications

CREATING a new generation of researchers equipped to work across scientific disciplines is the aim of a postgraduate training centre at the College.

The Chemical Biology Doctoral Training Centre, launched in 2002, sees its first PhD students graduate later this year. With funding from the Engineering and Physical Sciences Research Council and GlaxoSmithKline, it is now able to offer 16 fully-funded four-year PhD studentships.

The Centre trains science and engineering graduates to apply their expertise to emerging challenges in medicine and biology, and expects to have taught over 50 students by 2010. Among them is Roberto Abbondati, a physics graduate who is now focused on understanding the structure of membrane proteins in the brain. He said:

"Since my father was a doctor I had some medical understanding, but I didn't expect to be heading in that direction myself. However, I found myself more and more interested in seeing how the physics principles I learnt could be applied in a different way."

Chemical biology is the application of chemical understanding and techniques to the study of biological systems at a molecular level. Discovering how molecules work within and between cells is fundamental to



Roberto Abbondati, PhD student in the Chemical Biology Doctoral Training Centre

understanding, treating and preventing diseases such as cancer and HIV, and demands the varied skills of medics, biologists and physical scientists.

However researchers in these disciplines can often be separated by differences in perspective and methodology, sparking a need for researchers who can translate between disciplines. This is something Roberto experienced first-hand when he spent the summer following his graduation as an intern in Imperial spin-out DeltaDot, a company applying particle physics technology to biomolecular research.

"Working at DeltaDot forced me to think about how to apply the principles of physics to solve problems that were very different from those I had previously encountered," he says. "It made me realise how important working across disciplines can be."

Following his internship, Roberto began his PhD at the Centre taking courses in advanced biochemistry and biomolecular techniques. His neuroscience-based PhD demands a diverse range of knowledge, from structural biology to electron microscopy and image analysis, that would not be covered in

a traditional PhD programme. He believes this variety will be a good foundation for his future career.

"Science topics seem to come up in greater frequency at the forefront of current affairs, in the media as well as policy and political debate," he says. "I'd be interested in continuing the pattern of diversification that I have been able to follow up to now, perhaps moving into science roles in government or public policy."

Developing this kind of highly trained multidisciplinary scientist who can approach a problem with a variety of skills and perspectives is the chief goal of the Doctoral Training Centre, according to its Director Richard Templar, who is also Imperial's Head of Chemistry. He says:

"We are training a new breed of researcher. It is becoming increasingly important for physical and life scientists to work together effectively in order for advances in medicine and life sciences to be made. There is strong demand from industry and academia for scientists with these broad skills and that is why the Centre was founded."

The Centre is based within the Department of Chemistry and is a joint venture with the Institute of Cancer Research and Cancer Research UK.

① Visit www.chemicalbiology.ac.uk for more information about the Centre. Go to www.chemicalbiology.ac.uk/vacancies/default.aspx for information on studentships.

MEDIA MENTIONS

Abigail Smith Communications

The end of a starring role

Plans to close the London Planetarium to make room for more of Madame Tussauds' waxworks is "a disaster for astronomy education in the UK", says Michael Rowan-Robinson, Physics, in a letter to *The Guardian* (04.02.06). He adds: "Many children have had their understanding and appreciation of the night sky enormously enhanced by a trip there and it has been one of the major science tourist attractions of London."

Spinning gold

Nearly forty years of research has culminated in the establishment of two spin-out compa-

nies by 80-year-old Professor Colin Caro, Bioengineering, the *Times Higher Education Supplement* reports. The two companies, Veryan Medical and HeliSwirl Technology, reflect Professor Caro's twin interests in medicine and engineering. "Some people have ideas in their twenties, others in their eighties," he says. "I felt I had a worthwhile contribution to make to global health. With these two companies, I am working harder now than ever before in my career."

Natural born killers

Shunning synthetic materials in favour of 'natural' ingredients isn't necessarily the route to a long and healthy life, according to *The Observer* (22.02.06). The warning from toxicologists and chemists who fear the consequences of misconceptions about chemicals in everyday life is supported by

John Henry, Surgery, Oncology, Reproductive Biology and Anaesthetics, who highlights use of traditional medicines such as St John's wort. "There is no doubt it can be effective for treating depression, but it is difficult to administer," he says. "We do not know what its active ingredient is and that means you cannot assess its dosage."

Money makes the world go round

The movements of half a million single dollar bills as they change hands will be tracked in an attempt to understand how infectious diseases might spread. Welcoming the study, Neil Ferguson, Epidemiology, Public Health and Primary Care, tells *The Guardian* (26.01.06) that money is indicative of how people move around. "A few people travel a lot and if a bill gets into one of their wallets, then it can easily turn up on the other side of

the country," he says. "The jet set are crucial when it comes to spreading infections, and being able to put numbers on the behaviour of those people is very important."

Krispy Kreme universe

A newly-discovered pattern in the hot and cold spots of the 'afterglow' of the big bang fireball could mean that the picture science currently has of the universe is flawed, reports *The Independent* (01.02.06). This regularity where randomness was expected has been dubbed "the axis of evil" by Joao Magueijo, Physics, and could indicate that the universe is not the same in all places or directions but has a special direction. He adds that there are a number of ways in which this could be the case, including the possibility that the universe is shaped like a giant ring doughnut.

Spotlight on Spectrum

Buying software

Peter Gillings Communications

IMPERIAL College staff can go to the online ICT software shop to browse a large range of software products. The shop's webpages have comprehensive details of what is available for College and home use and educational discounts, as well as the latest software news.

Accessible by staff using a College login, the pages provide pricing, licensing and payment information for many products, such as Adobe, Macromedia, Corel, Matlab, Microsoft, Redhat Linux and agreements such as Eduserv (CHEST).

Software to download

Some applications, such as RealPlayer, Redhat Linux and Norton, are available free of charge and others, such as Microsoft Office, are included in existing College licence agreements and can be downloaded direct from the website following user registration.

Staff working from home may be entitled



to install a range of Microsoft products on their own computers under the current Microsoft Campus Agreement. Full details on eligibility, installation and registration are available from the website.

Student software

Go to www.imperial.ac.uk/ICT/Services/Software/StudentSoftwarePurchases for software at affordable student prices.

See www.imperial.ac.uk/ICT/Services/Software/SoftwareShop for full details of products available, shop location and opening times.



Fine Art Competition

Amanda Cerny, Communications

THE Blyth Gallery is holding a Fine Art Competition to discover the creative talent of staff and students at Imperial. Around 20 of the best entries will be exhibited by the gallery between 7–23 June.

Organiser Mindy Lee, Artist-in-Residence, hopes the show will bring together many artists from across the College, displaying varied works encompassing collage, drawing, painting, photography, sculpture and installation.

Each person may submit one piece of work.

The entry should be sent as a jpeg to blyth.june@imperial.ac.uk. Applications should include your name, job title or student details, title of the artwork, medium, dimensions and date of creation. (Please note that video or slide projections cannot be included.)

The deadline for submissions is Sunday 7 May 2006 and successful entrants will be notified by Friday 26 May.

Reporter hopes to feature the winning entries in the summer term.

Working towards good health

Care First—counselling, help and information for staff

Sheila Boyle Occupational Health

ALL sorts of concerns can affect your health and well-being. Pressure at work, family rows, a sick relative, bereavement or money matters, for example. If not managed effectively, these can lead to anxiety, depression or difficulty coping. Many of us struggle without realising it or knowing what to do.

Care First is an independent company that provides a free 24-hour confidential counselling, help and information service to Imperial and MRC/CSC staff.

Some of the typical issues Care First can help with are difficult situations at work, personal relationship problems, financial worries, housing, and caring for children, teenagers or elderly relatives. Legal matters can also be clarified.

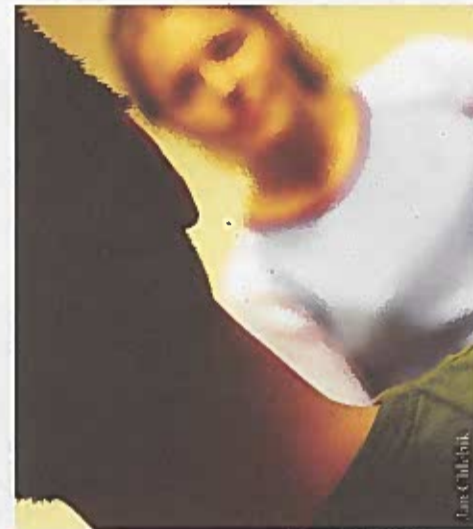
You can discuss your concerns over the telephone, or you can arrange to see someone face-to-face away from your home or work, usually within 48 hours.

Calls are answered by fully qualified counsellors experienced in dealing with workplace and domestic issues. Telephone support is also available to immediate family members.

Care First can also provide information

leaflets on dealing with debt, bereavement, childcare, drinking, elderly relatives and family breakdown.

Contact Care First on freephone 0800 174319 or, for further information about the various services offered, go along to one of the Care First seminars being held on 15 March at 12.00–13.00 or 13.00–14.00 in the Pippard Lecture Theatre, Sherfield Building, South Kensington Campus.



BA Media Fellowships

Amanda Cerny Communications

THE British Association for the Advancement of Science is offering Media Fellowships to create a greater awareness and understanding of the workings of the media among practising scientists, clinicians, social scientists and engineers. The Fellowships provide summer placements of three to eight weeks working with a journalist from the national press, TV or internet. Fellows will gain valuable experience of producing accurate, well-informed pieces about developments in science and

will be better equipped to communicate their research and expertise to the public and their colleagues.

Ainsley Newson, Postdoctoral Associate, Medical Ethics Unit, was picked as one of ten media fellows last year. The diary of her time spent at *The Times* is available at www.the-ba.net/the-ba/ScienceinSociety/_Schemes_and_awards/MediaFellowships/AinsleyNewsonswebdiary.htm

Visit www.the-ba.net/mediafellows for further information and an online application.

Alumni Quiz Night

Liz Gregson Office of Alumni and Development

FORMER students of Imperial are invited to take part in a Quiz Night on Wednesday 15 March. If you want to form a team, colleagues and friends are also welcome.

Taking place in the Senior Common

Room, Sherfield Building, South Kensington Campus, the quiz starts at 19.00 with tickets costing £7 per person. The ticket price covers entry and a curry supper at the end of the evening. A cash bar will also be available.

Contact Heather Campbell on 020 7594 6138 or at h.campbell@imperial.ac.uk for more information. Visit www.imperial.ac.uk/alumni/events/quiznight to book tickets online.

What's on... What's on... What's on...

Thursday 2 March 13.00

Lunchtime concert
Read Lecture Theatre, South Kensington Campus
Louise Oakes (trombone)
Hindemith *Sonata*; Hodgson *Sonata*
Wagenseil *Concerto for alto sackbut & harpsichord*; Weber *Romance*;
Londonderry Air (arr. Iveson)

Wednesday 8 March 12.00

Symposium of the Institute of Biomedical Engineering
Musculoskeletal technology network
Lecture Theatre 220, Mechanical Engineering Building, South Kensington Campus
Email: c.pulverman@imperial.ac.uk

Wednesday 8 March 17.30

Lecture and discussion on climate change
Dr Tim Flannery will be discussing his latest book *The Weather Makers*, Professor Ralph Toumi will give the academic perspective from Imperial College.
G16, Sir Alexander Fleming Building, South Kensington Campus
Email: c.marsh@imperial.ac.uk

Thursday 9 March 18.00

The 4th Ernst Chain prizegiving lecture
Professor Andrew McMichael, FRS
The T-cell-virus interface
Clare Lecture Theatre, Huxley Building, South Kensington Campus

Email: amanda.cerny@imperial.ac.uk

Inaugural Lectures

Monday 6 March 17.30
Professor Paul Klumpes, Tanaka Business School
Tuesday 7 March 17.30
Professor Nigel Brandon, Earth Science and Engineering
Monday 13 March 18.00
Professor G. Alastair Young, Department of Mathematics
Email: a.eldon@imperial.ac.uk

Visit www.imperial.ac.uk/events for a full listing of events at Imperial. Email events@imperial.ac.uk to subscribe to the Events E-Bulletin.

Noticeboard

Good news, bad news and, worst of all, hidden news

How can hidden information be brought to light? The traditional answer is by statistics, but for that you need statisticians. An attractive alternative to statistics is Information Visualisation, which allows your data to be viewed with no knowledge of computing, statistics or mathematics. The technique converts data into pictures making its significance immediately obvious. You could, of course, reject this new-fangled technique, confident that there are no surprises hidden within your data. But are you absolutely sure?

Go to www.imperial.ac.uk/cpd/infovis/index.htm for details of the Centre for Professional Development's one-day course.

Reporter is published every three weeks during term time. The copy deadline for issue 163 is Friday 3 March. Publication date is 15 March. Contributions are welcome (no more than 300 words). Please note the editor reserves the right to cut or amend the articles as necessary, information correct at time of going to press.

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