



## A Blueprint for success

**ITS first two buildings and ground-breaking public realm have only just been completed - but already the new Nottingham Science Park has been short-listed for five regeneration and property awards.**

The 12-acre, £50m sustainable development opposite The University of Nottingham's Park Campus has been short-listed in three categories at the Insider East Midlands Property Dinner Awards, earned further nominations at the Property Week Midlands Awards and helped secure local regeneration developer Blueprint a finalist's place at this year's Regeneration & Renewal Awards.

Marking phase two of the original and adjacent city council-owned Highfields Science Park, the new Blueprint development incorporates the landmark No. 1 Nottingham Science Park building and Highfields Automotive and



Engineering Centre, with further land available to develop bespoke units for larger occupiers.

At 42,000 sq ft, No.1 is designed to accommodate more mature science and innovation companies and complement the incubation space available for fledgling enterprises at the existing science parks, BioCity and The University of Nottingham's Innovation Park.

Commenting on the awards success, Sylvia Hargreaves, Project Director at Blueprint, commented, "We've worked hard at Nottingham Science Park to genuinely push the boundaries of design and sustainability, so we are delighted to see that our efforts have been recognised by independent peers."

The completion of the new science park is regarded as a major step forward in Nottingham's status as an official Science City. The site's public realm

includes a photogenic lily pad walkway connecting to an adjacent nature reserve. Designed by Studio Egret West, the eye-catching No.1 building incorporates a biomass heating system, brown roof for wildlife and insulation, natural ventilation, maximum use of natural light and use of recycled and sustainable building materials.

The Regeneration & Renewal Awards, in which Blueprint is up for Partnership of the Year, is organised by Regeneration & Renewal magazine. The winners will be announced in London on September 18. Blueprint was highly commended in the category last year.

The Insider East Midlands Property Dinner Awards will be held at the East Midlands Conference Centre on September 25 while the Property Week Midlands Awards were held at the ICC in Birmingham on July 22.

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Sylvia Hargreaves, Project Director

# BioCity's growth marked by 60th tenant

**BIOCITY'S on-going success was underlined when its 60th tenant moved in this year – and the company has just achieved its first commercial sales.**

The business concerned in many ways typifies the kind of enterprises which are helping Nottingham build its reputation as a centre for innovative science research and commerce.

Promethean Particles, which secured its first round of seed-corn funding last November, is a small university spin-out working in the field of nano-technology.

Based on research by technical director Dr Ed Lester, a reader in chemical technology at The University of Nottingham (See Visual Learning Lab article on page 4) the company uses a process called continuous hydrothermal synthesis to produce quantities of inorganic nanoparticles suspended in water.

These nanoparticles, measuring from five to 300 nanometres – one nanometre is one billionth of a metre – have applications in a wide range of industries including healthcare and cosmetics.

“Nanoparticles are not a useful product in themselves but are an enabling



technology,” said business development director Dr Sandy Gordon. “The materials are used for artificial bone, for example, or sunscreen. And I’m pleased to say that that we’ve just had our first sales to the healthcare sector.”

Small quantities of nanoparticles are produced in the company’s lab-scale reactor, which is run by technical manager Dr Helen Hobbs. Bigger quantities can be produced in a larger reactor owned by The University of Nottingham which was designed by Dr Lester.

The reactors’ unique and patented technology allow Promethean Particles to control the morphology and quantity

of nanoparticles. And being in solution, the product does not possess some of the potential problems associated with nanoparticles produced as a dry powder.

“We can produce a very wide variety of materials and we have a large amount of control over the product,” said Dr Gordon. “We also never produce dry powders, which have health and safety issues because there’s a concern about inhaling them.”

Initial funding for Promethean Particles has been gained from the Lachesis Fund and Catapult, which has a virtual office in BioCity.

Dr Gordon added: “BioCity was the perfect location to move to – the big attraction for use was that it has wet lab space and in other offices you don’t get that. Being in Nottingham’s it’s also fairly easy to travel to anywhere for business and many clients have already heard of The University of Nottingham and BioCity. That’s to our advantage.”

*Image: Technical manager Helen Hobbs, of Promethean Particles, attends the lab-scale reactor with a very large spanner.*

## Breaking down the barriers with science

**IS it possible to become the Hulk? If lab coats came in different colours, what colours would you choose?**

Well, who hasn’t wanted to ask a scientist such burning questions? In fact, local school children got the chance to put questions such as these to scientists in a live internet chat event titled ‘I’m A Scientist, Get me Out Of Here’ held this summer.

Funded by the Wellcome Trust, the event was aimed at supporting the ‘How Science Works’ component of the GCSE science curriculum and at breaking down barriers between scientists and young people.

According to Sophia Collins, producer of I’m A Scientist: “These parts of the syllabus can be difficult for teachers to teach. Many teachers told us, as part of our development research, that existing teaching materials had been ‘rushed out’



when the new GCSE curricula came out in 2006 and weren’t very thorough or well put together. And they often didn’t really seem to ‘get’ what ‘How Science Works’ was supposed to be about.”

Over two weeks, 950 pupils at 25 schools around the country were given the chance to chat live with scientists over the internet. Then, after sending 1,300 questions the scientists’ way, the pupils were asked to vote for their ‘favourite’ scientist, who won £500 to publicise his or her work.

One local school which took part was Sherwood Hall School and Sixth Form College in Mansfield.

Teacher Kirsty Price told us: “I thought it was fantastic; it really excited the students and got them interested in both the science but also the people behind the scientists. The ‘real’ approach of having their questions answered made it relevant to them and to hear them talking to each other about who answered their questions and what they said showed that it wasn’t just an exercise they had to do – it was reaching them on a personal level. Some couldn’t believe they were talking to real scientists, so asked them science questions to check!”

She added: “The live chat was fabulous; it engaged the students using a medium they are comfortable with and can access even if they did have to be prompted to not use MSN Talk!”

The event was a pilot study. After feedback is evaluated, the event should be held on a larger scale next year.

# Horse whispering in reverse at NTU

**THE ancient art of ‘horse whispering,’ they say, is a way of calming and soothing a horse. But did you know that horses can, in turn, improve human health and well-being?**

This is the belief of Nottingham Trent University PhD student Beth Duff, who is researching a method called Limbic Stress Assessment to quantify the degree to which horses can ‘heal’ and impart feelings of well-being in people who spend as little as 30 minutes around them.

Duff delivered the preliminary findings into her work at the annual Research Conference of the School of Animal, Rural and Environmental Science at NTU’s Brackenhurst campus. The day was an opportunity for PhD students and those studying for two MScs - Equine Health and Welfare and Biodiversity Surveying - to present the latest findings of their research.

Duff conducted her research in Wisconsin, USA, using five horses and a group of horse trainers. The Limbic Stress Assessment method measures stressors in the body using electromagnetic signatures. The LSA method measured that her own rheumatism and feelings of jetlag and overall stress levels were reduced after half an hour with a horse, said Duff.

“Horses improve our wellbeing and thus our openness to learning,”

she added. In a separate but related paper on the Impact of Learning with Horses in Leadership Development, Duff said that horses preferred to be around people with “high emotional intelligence.”

While admitting that the LSA method could be viewed as ‘unscientific’ by some, Duff said there was a growing body of evidence to substantiate a belief in the healing power of horses.

Year 1 PhD student Rachel Kay said her research into Recognition and Communication of Emotion in the Horse may ultimately be used to improve horse welfare by giving owners knowledge of “positive emotional experiences” for the animals.

And she concluded with this intriguing statement: “We may be able to use projections of facial expressions to calm an anxious horse.”

Other finding presented: Year 3 PhD student Roger Hart’s extensive research into the hydrology of two lowland raised



bogs in Cumbria should help improve management and conservation of such landscape features, which are of high conservation value.

Both bogs are Sites of Special Scientific Interest and changes in the underlying water table and how these relate to vegetation and topography have been monitored by Hart using dipwells and automated data recorders.

Hart said the aim of the research was to produce a methodology enabling land managers to predict hydrological conditions in bogs thus giving them an opportunity to address changes before they become a significant problem.

*Image: Students who took part in the ARES conference at NTU’s Brackenhurst campus.*

## DATES FOR YOUR DIARY

### Launch of Blueprint Nottingham Park

The official launch of Blueprint’s £50m new Science Park in University Boulevard is taking place on 17th September.

Tenant occupation of the 12-acre site, opposite Highfields Park, began in June. The development, incorporating the eye-catching and sustainable No. 1 Nottingham Science Park building and Highfields Automotive and Engineering Centre, marks the Phase 2 extension of the original adjacent 48-unit city council-owned Nottingham Science Park which opened around 20 years ago.

Nick Ebbs, CEO of Blueprint, said: “With GNP and city council money we’ve also been sprucing up the entrance to the

original Nottingham Science Park with a new gateway, signage and lighting. We thought ‘we’ve got this fabulous new site so why not spruce up the rest?’”

### National Science City Summit in Nottingham

Nottingham Science City is proud to announce that it will be hosting this year’s national Science City summit on October 30 and 31.

The aim of event, which follows on from last year’s 2007 summit in Birmingham, will be to chart on-going progress of economic growth from science through stronger partnerships between businesses, universities and government at the city/regional level.

Workshops and presentations will

be held around themes of healthcare, energy, digital media and young people in science.

Contributors will include representatives from England’s six Science Cities plus key businesses from Nottingham.

However, the summit won’t be all work and more work. The event will co-incide with Nottingham’s annual and successful celebration of computer gaming, GameCity, and delegates will have the opportunity to relax and enjoy GameCity-hosted events in the evening. The summit will also include an evening dinner and a day-time visit to Nottingham science locations such as BioCity and the Innovation Park itself.

More details of the summit will be announced soon.

# Budgie and co help take students on the science ride

**FROM Budgie the Helicopter to treasure maps on a mobile phone – a day with Nottingham’s Visual Learning Lab makes plain how much computer gaming is influencing the teaching of sciences.**

The University of Nottingham’s Visual Learning Lab (VLL) was established in 2005 as one of 74 national HEFCE-funded Centres of Excellence in Teaching and Learning. Its brief: to research and improve teaching and student learning through new visual learning techniques.

A VLL Projects Day held this summer revealed the extent to which gaming traditions are being used to attract students to science courses and keep them interested while they’re studying.

Geographer Dr Gary Priestnall, for example, described a wide range of interactive computer ‘geowidgets’ which are employed from undergraduate to Masters level. These include an interactive flood-modeller called Cats and Dogs (as in ‘It’s raining...’) and a mobile phone-based treasure hunt game titled Geocode which helps teach students about map reading. Speaking afterwards, Dr Priestnall said he believed that, outside academia, mobile phones will increasingly be used as mapping devices. “Different kinds of mapping may emerge,” he said. “There could be maps suited to individual

needs and tastes, mapping the location of everyone in your address book if they chose to be ‘locatable’, for example.”

An equally wide range of gaming applications was described by Dr Ed Lester, of the School of Chemical & Environmental Engineering. 3D noughts and crosses, for example, is used to teach spatial awareness and remind engineers about computer programming; a bowling game titled Guttered reflects the software’s ‘physics engine’ (something widely used in modern commercial computer and console games); a 3D version of Connect 4 also teaches spatial awareness; and in another planned “massive game” still being developed, students are asked to travel down tunnels to find a radioactive leak.

But the star of the show was Budgie the Helicopter – or at least a version of the child’s slot ride, modified to allow a student to get inside and play a version of 3D minesweeper using instructions sent wirelessly from students in another room.

Lester said that toys like this were essentially about attracting students to engineering courses.

“We tend to produce all rounder graduates at Nottingham, and this game is a new way of teaching and assessing ‘soft skills’ such as leadership, decision making and spacial awareness. All three skills are important for graduate engineers.” he said.

Other examples of new visual learning techniques are being used in pharmacy and the biomedical sciences.

In the School of Pharmacy, the simple addition of 42-inch screens in



the teaching lab, allowing students to see practicals from their seats rather than having to crowd around a single desk, has improved learning. Dr Colin Melia said that, previously, as many as 50 students have had to stand to see practicals in the hot lab and this caused some students to faint.

In the School of Biomedical Sciences, VLL support is being used to create 3D projections of molecular structures. Like watching old 3D movies, students have to wear 3D spectacles to get the full impact of the image.

This year’s third annual celebration of computer gaming, GameCity, will be held in Nottingham between 30th Oct and 1st Nov.

*Image: Budgie the Helicopter, wireless 3D minesweeper game. No coins necessary.*

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Dr Ed Lester  
School of Chemical &  
Environmental Engineering

# The sky's the limit

**THIS summer saw the final installation of Aspire, the towering sculpture which now forms the centre piece of The University of Nottingham's new £30m Innovation Park at the Jubilee Campus. At 60m tall, Aspire is higher than the Statue of Liberty and is the UK's tallest free-standing sculpture. Yet only 16% of the tower is visible – the other 84% forms the stabilising foundations underground. Like the rest of the Innovation Park site, the sculpture was designed by Ken Shuttleworth, of architects Make. Shortly before a crane lifted the final piece of Aspire into place, Mr Shuttleworth agreed to answer a few questions.**

**Q** Reading through your CV you have been involved in a wide range of projects including designs for retail, hotel, mixed use and recreational developments. Yet only one other proposed project, the Halley VI Research Station in Antarctica, for the British Antarctic Survey, could be described as being purely for 'science'. Does your approach to a large science development such as The University of Nottingham's Innovation Park differ fundamentally from how you approach other kinds of architecture?

**A** I don't think we really approach projects differently. Each project has its own interpretation which comes from the brief. The Halley project was fantastic. The Halley Base in Antarctica is sinking and there was a competition to design a new base which came down to six people. We didn't end up winning the competition but we did a lot of research into issues such as energy efficiency and insulation which went into the buildings on the Innovation Park. We've tried to make these buildings as efficient as is humanly possible

**Q** Would you describe architecture as a science or an art?

**A** Architecture is a fusion of art and geometry, which were the subjects I was best at at school. I was crap at mathematics, but good at geometry. Aspire is basically a fusion of art,



architecture and structural engineering.

**Q** Do you personally have any scientific background or training?

**A** No I don't. I'm an architect, for which I trained for seven years! Would it help if I had some scientific background? I don't think so. A lot of people are better scientists than I am and we have a lot of people on the team who have expertise which has fed into this project.

**"We want to be central on the world stage but we can no longer do it through manufacturing so we have to do it through our intelligence and our knowledge."**

**Ken Shuttleworth, Architect**

**Q** What contribution do you think big projects such as the Innovation Park can make to the regional and national economy and wellbeing?

**A** I think innovation is what Britain is

all about. All the way back to the Great Western Railway, we've had these fantastic breakthroughs and these have continued into the 21st century. We want to be central on the world stage but we can no longer do it through manufacturing so we have to do it through our intelligence and our knowledge.

**Q** Could you tell me about some of your own favourite buildings, old and new?

**A** Coventry Cathedral, which is a fairly new building; York Minster; Salisbury Cathedral; I also like some of the ones I've worked on, such as Wembley Stadium. I really admire the new aquatic centre at Beijing and the Bird's Nest Stadium in Beijing is also a really fantastic looking thing.

**Q** Finally, I have heard that the Gateway Building on the Innovation Park is supposed to resemble a bicycle sprocket and chain set when viewed from above, in honour of Raleigh which used to occupy the site. Is this true?

**A** Is it? I've never heard that before. It's a coincidence, but it's cool.

*Image: Left: the Aspire Sculpture being topped up. Right: The University of Nottingham Vice-Chancellor Prof Sir Colin Campbell (left) and architect Ken Shuttleworth,*

# If you missed...

## MIPIM and the Life Aquatic



Image: Martin Gawith of GNP

...The world's largest commercial property exhibition, held in Cannes, France in March, had a strong Nottingham Science City presence with both the international launch of Blueprint's Nottingham Science Park and the availability of a brochure promoting the city as a key destination for aspiring science and innovation companies. Over 24,000 people attended this fiercely competitive show, with Nottingham's high profile 'stall' attended

**"MIPIM provided Nottingham, and Blueprint as one of its active developers, a chance to showcase the city and all that it has to offer."**

John Long  
Development Director

by representatives from Nottingham City Council, Blueprint and Nottingham Regeneration Limited (NRL). The stall was, in fact, a yacht, the 100ft-long Powder Monkey, which was allocated a prime mooring spot along Cannes' main quay.

A presentation on Nottingham as a science destination was made on board the good boat by Martin Gawith, CEO of Greater Nottingham Partnership, John Long of Blueprint and Marc Cole, CEO of NRL.

So was it all worthwhile?

Kay Hudson, of Vision Nottingham, said: "About 50 people attended the presentation which was based around the property offer at BioCity, The University of Nottingham Innovation Park, Nottingham Science Park and future developments at Medicity and the Boots Alliance site. There was a lot of interest shown but the leads from it are still on-going."

John Long, a Development Director at Blueprint, commented: "MIPIM provided Nottingham, and Blueprint as one of its active developers, a chance to showcase the city and all that it has to offer – its forward-thinking developments, its science pedigree, its two premier universities, its vibrancy, and not forgetting the fact it's also a great place to live."

At NRL, Marc Cole added: "MIPIM provided an opportunity to showcase the new specialist science park space which will come to the market later this year, as well as highlighting the potential pipeline property supply which going forward will contribute to strengthening Nottingham's position as a leading Science City."

## Nanotechnology goes big



Image: The Nano roadshow in Market Square

In April, Market Square hosted the 2008 East Midlands Nanotechnology roadshow NanoWhat? a three day exhibition of games, films and interactive displays to demonstrate the benefits and potential of nanotechnology.

NanoWhat? was funded by the East Midlands Development Agency (emda) and led by The University of Nottingham in conjunction with all the other Universities in the East Midlands. Between April and July, 23,000 people visited the roadshow and experience first hand this 'totally tiny technology'.

## Art for science sake

Although art and science are too often seen as possessing opposing values, Nottingham Science City had a strong presence at a city centre art gallery in April thanks to an East Midlands Development Agency (emda)-funded exhibition of photography by Mark Enstone. The week-long exhibition at View from the Top Gallery, on the top floor of Waterstone's bookshop, showcased imagery of Nottingham as a dynamic science location and attracted hundreds of people.

# What is Nottingham Science City?

The Government designated Nottingham as one of the six Science Cities in March 2005. Nottingham holds this science status to acknowledge a rich science heritage, from the invention of ibuprofen and the MRI scanner, to Nottingham's present strengths, including two of the county's leading research universities.

Nottingham Science City is supported by a number of organisations and they include: The University of Nottingham, Nottingham Trent University, Nottingham City Council, Greater Nottingham Partnership, East Midlands Development Agency, Nottinghamshire County Council, Nottingham Development Enterprises, Nottingham Regeneration Ltd and the Learning and Skills Council.

### Nottingham Science City aims to:

**NURTURE... Nottingham's role as an international leader in scientific discovery and teaching excellence**

**STIMULATE... community pride and interest in our scientific heritage**

**CONVERT... science into thriving businesses in Nottingham**