

# THURSDAY EXPERIMENTATION

## 3pm **Astrobiology** Dr Lewis Dartnell, **Astrobiologist, UCL**

Astrobiology explores the origins and limits of life on our own planet and asks where else it might exist. What exactly is "life," how did it emerge, and what are the most extreme conditions it can tolerate? Tour our solar system and distant stars, and ask the question: are we alone?

## 4pm **Science Pub Quiz** Frank Swain, **sciencepunk.com**

You don't have to be a science buff to compete, as points will go for witty answers as well as correct ones. The emphasis is on the weird end of science, so the most ridiculous answer is probably the correct one. Either way, you'll learn enough odd facts to sparkle in pub conversations for years.

## 5pm **Alien Abductions** Dr Chris French, **Psychologist, U of London**

Thousands of people claim to have had contact with aliens. Most do not appear to be lying, nor to be psychopaths. But their accounts may simply be false memories. Sleep paralysis, fantasy proneness, and unusual activity in the temporal lobes of the brain may be responsible.

## 9pm **Beat Boxing Workshop** Yasson, **myspace.com/yasson**

Learn to beatbox with this seasoned pro who will guide you through the art of sound manipulation. Learn to take everyday – even silly – sounds and form them into structured rhythms, from standard drum snares and hi hats to auditory miming and vocal scratching.

## 10pm **The Science of Beat Boxing** Dan Stowell, **mclid.co.uk**

Dan is as close as it gets to a Doctor of Beatboxing. He has published academic research papers on it, and is teaching computers to analyze the human voice for his PhD thesis. He has stuck cameras down his throat to see his voicebox in action, and he wants to show you how it works.

## 10:30pm **Impossible Objects** Bernard Wood, **bhwood.com**

Animations unlike any other. In his own words, "multifaceted morphing geometries" and "evolving images of impossible objects," meshing visuals with electronic soundscapes.

## 12am **Spoonfighting** Dan Stowell and Dylan Keeling, **mclid.co.uk**

Beatboxing with a twist. Blending the human voice (converted into electronic noises) with keyboards, you might not be able to tell if the two are in sync or combat – either way, it's a spoonfight. And with new "supercollider" software, they promise to be one thing: funky.

# Out And About, All Weekend

## **Kitchen Chemistry** Nikolai and Bethan & Naz

Our expert experimentalists will guide you through the world of matter with everyday objects. If you thought making a cake was messy, try throwing flames with custard powder.

## **Paranormal Research** Dr Chris French & Grad students

Come see you if you really do have psychic abilities. Lend your brains to research.

## **Free Math Advice** Professor Appleblossom

Consult our roving math oracle for all your calculational needs.

## **The Sun Worshippers** sunworshippers.org

An inflatable planetarium and solar telescopes to inspire sun-kissed passion.

## **Bake a Brain Tea Party** Becky Lawson, **Brain-optician**

A delicious edible cake brain will be dissected, discussed and digested. Come for a cuppa and a chat about brain history, anatomy and function.

## **Hospitality 2 to 6AM, Sound Installation** by Jeremy Keenan & Helene Cooper

Take part in this interactive, immersive sonic art installation as both audience and performer. See if you can figure out how the dancers and space respond to you.

# SATURDAY MUSIC AND ART

## 12pm **Mutable Matter** Angela Last, **PhD Student, Open University**

Somewhere at the nexus between science, art and geography lies this interactive project that explores our relationship with matter. Mutable Matter will take you to another dimension: the nanoscale. See how scientists visualize atoms and molecules, and create your own model.

## 1pm **Rough Science** Mike Bullivant, **BBC Presenter**

Mike is a chemist and one of the presenters of the popular BBC2 series Rough Science. In this light-hearted talk, he'll be chatting about the series and some of the outreach work that has come out of it.

## 2pm **Hacking the Brain** Dr Lewis Dartnell, **Astrobiologist, UCL**

Our brain works like a computer, performing continual calculations with the raw data from our eyes and ears. We can understand how our brains do this with optical and auditory illusions, which "hack" the brain's circuitry, revealing the inner workings of the mind.

## 3pm **Mastering Memory** Ed Cooke, **Science Writer**

Have you ever wanted to memorize all the Kings and Queens of England? Pi to a hundred decimal places? Come and learn how.

## 4pm **Music of the Universe** Dr Carolin Crawford, **Astronomer, Cambridge**

Come for an unusual tour of our noisy universe. Carolin will play and explain a range of astronomical sounds, from radio signals transcribed to the audible, to the real sounds of space - and show how sound itself was crucial in shaping the entire structure of the cosmos.

## 5pm **The Evolution of Music** Zoe Cormier, **zoecormier.com**

Why do structured sounds make us feel so good? Is it just a coincidence that all cultures make music – or is there a biological reason for it? Discover how songs make your brain tingle. Could it be because we made music long before language?

## 6pm **Fractals, Patterns and Art** Billy Rood, **willrood.net**

Fractals are infinitely complex and endlessly beautiful shapes that occur throughout nature and in mathematics. Take a journey into a fractal dimension that goes on forever.

## 7pm **The Science of Zombies** Frank Swain, **sciencepunk.com**

From parasitic worms that take over their host's mind, to the role of puffer fish in creating Haiti's voodoo slaves, learn how to hijack the brain, why it is likely that 40% of the audience already harbours a mind-bending parasite, and how to avoid becoming a zombie yourself.

## 8pm **Songkick** Pete Smith, **songkick.com**

Transform the way you listen to live music with Songkick.com, dedicated to hassle-free gigs. Meet software that tracks tour dates for bands you like, and figures out what else you might enjoy based on your iPod playlists. Computation never sounded so good.

## 10pm **Science Shorts** Tom Mustill, **Filmmaker, dfgdocs.com**

What happens when you cross biomedical scientists with intrepid documentary filmmakers? A&E sets the scene for real-life hero watching, whilst umbilical cord blood becomes a commodity. These short films offer show that science makes for good TV.

## 12am **Slub** Alex McLean, **Dave Griffiths, Ade Ward, slub.org**

Definition: Life Electronic Music Programming. Each member uses his own handmade livecoding "environment" to create synthesized sounds with layered visual outputs of code. Simply put: "People that do strange things with electricity."

## 1am **Tracking Science** DJ Discomal, **myspace.com/discomal**

Take a peek into an aural analysis of society's obsession with science. All tracks give reference (or is that reverence?) to science. Listen to the lyrics – or just dance.

# FRIDAY COME THE REVOLUTIONS

## 12pm **How to Start a Scientific Revolution** Jack Stilgoe, **Demos**

Step 1: spot the citizen scientists. Step 2: gather into a collective. Step 3: Join this senior researcher from the "everyday democracy" think tank Demos for a blue skies approach to changing the world. Have your say and talk science, revolution and liberty.

## 1pm **Quantum Mechanics** Mark Rosin, **PhD Student, Cambridge**

Quantum mechanics says that when things get small, they get weird. Light switches from a particle to a wave and things seem to happen at random. Take a peak inside the quantum realm and ask what it means for philosophy and science.

## 2pm **String Theory & Multiverses** Kate Marvel, **PhD Student, Cambridge**

How big is the universe, where did it come from, and is it the only one? And what on earth is Stephen Hawking talking about? Come and learn the entire history of the known universe in an hour, sampling some relativity and string theory along the way.

## 3pm **Game Theory** Billy Rood, **Freelance Mathematician, willrood.net**

The study of games, and the conscious and unconscious motives at play, reveals the evolution of trust, cooperation, and the future evolution of humanity. Discover the paradoxes in rationality and resolve the dichotomy of altruism and self-interest.

## 4pm **Hybrid Lives** Tobie Kerridge & Susana Soares, **materialbeliefs.com**

Do you ever feel like a technological hybrid? A semi-cyborg intrinsically powered by and embedded with bits of gadgetry? Then come and learn how new technologies are being used to repair and extend our bodies.

## 5pm **Anomalistic Psychology** Dr Chris French, **Psychologist, U of London**

A substantial percentage of the population has always believed in "paranormal" phenomena. Does this mean that paranormal forces really do exist? Or can psychologists do better by explaining paranormal phenomena in terms of known psychological and physical factors?

## 6pm **How to Fight Bad Science** Frank Swain, **sciencepunk.com**

Do mobile phones cause brain tumours? Are tomatoes the new superfood? Do herbal remedies work? Every day we are inundated with "science" stories, few of which have any grounding in real science. Learn to sort truth from nonsense, and fight back against idiot science.

## 7pm **The Beauty of Fluid Dynamics** Rosie Robison, **PhD Student, Cambridge**

Fluid motion – gases, liquids, anything that flows – is all around you, floating in the silvery lake, swirling through heady fumes. Fluids may seem utterly chaotic, or deceptively simple, but they are always intriguing. Come marvel at this tasty visual presentation.

## 10pm **Science Shorts** Tom Mustill, **Filmmaker, dfgdocs.com**

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## SUNDAY CONSCIOUSNESS & CLIMATE

**11:30am Intelligent Computing** Dr David MacKay, Physicist, Cambridge  
Computers are a bit like brains – but a lot dumber. So how might we make them smarter? Dr MacKay's new writing program, Dasher, allows you to write hands-free up to 25 words a minute, using technology akin to predictive text. Useful for the disabled, fun (and free) for all.

**12pm Sensory Theory of Motor Consciousness**, Ed Cooke  
It is a perplexing question: How does conscious experience derive from our physical bodies? Explore the continuum of sensation, from hallucinations to the colour red, and learn how this affects how you perceive your abilities and actions.

**1pm Neuroscience of Memories** Guy Billings, PhD Student, U of Edinburgh  
We have strong intuitive feelings about how the brain works, for example the feeling of "free will." But rest assured: there are scientific prospects for understanding them. Discover why things we think we know might be wrong.

**2pm Climate Change** Dr Paul Young, Atmospheric Scientist, Cambridge  
Climate change stories are ubiquitous in the media – but the science is often wrong, or simply left out. This can breed confusion as well skepticism. So how and why do we know that humans are causing climate change? And what can the past tell us about the future?

**3pm Sustainability Without Hot Air** Dr David MacKay, Cambridge  
Assuming we want to stop using fossil fuels, what are our options? Does Britain have "huge" renewable energy resources? How much energy do we need, and how much can we produce? Let's see how the options add up.

**4pm Busting Climate Myths** Laura Middleton, BBC Researcher  
We suffer from eco-fatigue, paralyzed by conflicting media messages over who to blame and what to do. Laura will bust through the myths to help you understand why climate change seems such an unwieldy beast, get over your eco-guilt and take positive steps.

**5pm Small is Beautiful** David Howey, PhD Student, Imperial College  
Check out the small-scale renewable energy technologies that are most useful to local communities, especially in the developing world – such as micro hydropower. What's more: we'll build an eco-house.

**6pm Solar Cell Futures** Toby Ferenczi, PhD Student, Imperial College  
Change the way you think about renewable energy. Contrary to popular belief, solar power can compete with fossil fuels both in scale and in cost. Find out why the UK is so far behind, why solar panels can be compared to newspapers, and how important they may become.

## Music

This is a festival, after all. Rest your tired mind and have a stomp. Each night features a gang of DJs until 2am, including Alabaster Crippens, F Lunaire, Alex Brown, Charlie May, The Dancing Dads, and The Sexy Kids (you know you love that joke).

Plus we have a pimped out camper van for all your pimping needs, complete with sound system and comfy pillows.

## Your Science Guerillas

**Richard Bowdler** is The Daddy (some might say Pimp) of the science tent. He's the enthused one with the crazy eyes, the old-school braces and Cheshire cat grin. "A wild Marine gone wrong," as some put it. "He partook in psychedelic experimentation under the auspices of medical research," others suggest. But those who know Bowdy know he simply does it "because it's hard." Yes, "Feel the burn, in your brain," he challenges, "come to the Guerilla Science Tent with questions, leave in tears."

**Jenny Wong:** hook this girl up to an EEG (brain sensor) and it might explode. She perpetually buzzes with brain activity. She galvanizes creative ways to find the answers to all you never knew you wanted to know more about. In her day job at the Dana Centre she brings together researchers, speakers, weirdos, egoists, and oracles to explore the mysteries of the living and unliving. She lives to reveal the beauty of science to anyone with a sense of humour and an inbuilt curiosity.

**Mark Rosin** spends many an hour with Bertrand Russell, his philosophical hamster. It was little Bertrand who put the big idea into Mark's normal sized-head to follow his calling: to understand the evolution of galaxy clusters, the largest gravitationally bound objects in the universe. And so Mark and Bertrand quest together in the quest for knowledge. Mark may almost be a doctor of theoretical physics, but since when do physicists have piercings? The scruffy youth of today, eh.

**Zoe Cormier** is a rare breed: a journalist with a science background. This vociferous Canadian has published oeuvres on vaginal plastic surgery, scientific studies that probed whether or not size really matters, and - for good measure (cough) - climate change spin-doctoring. Spawned by rock promoters and hippies, she yearns to know why we love to make organized sounds so much. She hates academic jargon and loves to show non-scientists why truth is stranger than fiction. If in doubt, watch slugs have sex.

**Mia Kukathasan** is the one with the questions. Does telepathy exist? What does an impossible object look like? Can someone really become a Doctor of Beatboxing? How can I contract a mind-altering parasite? She wants to unscramble your brain and fill it with oddities. She seeks to explain the majesty of the science behind it all. And she is always on the lookout for new ways to enjoy the artistic expression that scientific progress unleashes. She is itching to fill the tent with PILLS.\*

\*PILLS = Participation, Interaction, Loving Learning Science

# GUERRILLA SCIENCE CAMP

**Because Truth Is Stranger Than Fiction**

**We know, we know – you think science is boring. But don't let the uninspired teachers you had ruin it for you. Science isn't about reducing life's complexity to humdrum mundanities – it is about how spectacularly amazing reality is. Let us assault your senses, open your eyes and blow your mind.**

**Discover why you might already have a mind-bending parasite lodged in your brain, listen to the music of the stars, and learn to shoot flames with custard powder in our chemistry kitchen.**