



6TH INTERNATIONAL SCIENCE FILM FESTIVAL OF ATHENS

COMPETITION

1. 100% conductive: Superconductors

Original Title: 100% conductive: Supraconductors

Duration: 12'

Producer: CNRS Images

Director: Alain Monclin

Company: CNRS Images

Scientific Field: Exact Sciences/ Technologies

Year: 2011

Country: France

On the 8th April 1911, whilst observing mercury at the temperature of liquid helium -269°C , Heike Kamerlingh Onnes discovered a new and surprising physics phenomenon: superconductivity! This phenomenon is made apparent by two remarkable effects. Superconductors not only conduct an electric current perfectly, they also expel magnetic fields and make magnets levitate. A hundred years after its' discovery, superconductivity still remains a huge enigma. Many laboratories are concentrating their research on it, and it represents one of most essential issues of modern physics. This dynamic area of study has already been awarded thirteen Nobel Prizes! A variety of applications already exist, from medical imagery to levitating trains, and future applications like energy storage, or quantum computers, could change our world. This film treats the properties of superconductors, recent progress in research, and the existing and future applications of this extraordinary phenomenon. A short film entitled *8 Avril 1911: The coldest day* tells how the supraconductivity was discovered in Heike Kamerling Onneset's laboratory.

2. Artificial uterus: Birth without bodies, The

Original Title: L'utérus artificiel: Le ventre de personne

Duration: 53'

Producer: The factory, ARTE France, Fontana, RTBF

Director: Marie Mandy

Company: The factory

Scientific Field: Medicine/ Genetics/ Experimental sciences

Year: 2011

Country: France

An artificial placenta, synthetic amniotic fluid... These medical advancements designed to help premature babies could soon allow the creation of an "artificial uterus" and with it the possibility of fabricating human babies outside of a woman's body. The film is a scientific investigation about this life-making machine. How could it work? Why would we want to externalize pregnancy? Who will benefit from it? What will the consequences be on the

future baby? Award-winning film director Marie Mandy explores the value of life and the power of science in this thought-provoking and creative film.

3. Botox: A poison on its way to the top

Original Title: Botox: Ein gift macht karriere

Duration: 52'

Producer: Antje Christ

Director: Antje Christ

Company: Christ Media GmbH

Scientific Field: Pharmacology/ Cosmetic Medicine/ Medicine

Year: 2010

Country: Germany

The documentary tells the story of a deadly toxin's swift rise to global popularity. From its origins in a spoiled sausage, it has found its way into the world of the wealthy and beautiful, becoming famous as the wrinkle-killing agent "Botox". Less well-known is the fact that Botulinum toxin, as it is officially known, has been in use medicinally for decades; with some illnesses, it is the only treatment that can bring relief. The market for Botox is worth 1.3 billion dollars annually, and its application in cosmetic medicine continues to grow by leaps and bounds. The documentary presents the results of the latest research into Botulinum toxin and investigates the possible side-effects of this poison, which is injected into diseased muscles and unwanted wrinkles worldwide.

4. Changing your mind

Original Title: Changing your mind

Duration: 52'

Producer: Gordon Henderson & Mike Sheerin

Director: Mike Sheerin

Company: 90th Parallel Productions Ltd

Scientific Field: Neurology/ Medicine

Year: 2010

Country: Canada

For centuries the human adult brain has been thought of as incapable of fundamental change. Now the discovery and growing awareness of neuroplasticity has revolutionized our understanding of the brain –and has opened the door to new treatments and potential cures for many diseases and disorders once thought incurable. In the last few years, we've built on our knowledge that our brains are constantly changing their structure and function and that the adult brain is not "hard-wired" but plastic – always changing. *Changing Your Mind* follows last season's eye-opening documentary *The Brain That Changes Itself* (based on the best-selling book by Toronto psychiatrist and researcher Dr. Norman Doidge). In this documentary, we explore how the changing brain can be harnessed to find new treatments for mental diseases and disorders. And therefore offering some hope to those suffering from obsessive compulsive disorder, post-traumatic stress disorder and even schizophrenia.

5. City dark, The

Original Title: The City Dark

Duration: 84'

Producer: Ian Cheney

Director: Ian Cheney

Company: Wicked Delicate LLC

Scientific Field: Astronomy/ Space

Year: 2010

Country: USA

The city dark chronicles the disappearance of darkness. The film follows filmmaker (and amateur astronomer) Ian Cheney, who moves to New York City from Maine and discovers urban skies almost completely devoid of stars. Posing a deceptively simple question, "What do we lose, when we lose the night?" the film leads viewers on a quest to understand how light pollution is affecting people and the planet. In six chapters weaving together cutting-edge science with personal, meditative sequences reflecting on the human relationship to the sky, *The city dark* shines a new light on the meaning of the dark.

6. Collective minds: Intelligence of the masses

Original Title: Swarme: Die intelligenz der massen

Duration: 45'

Producer: Robert Puetz

Director: Jakob Kneser

Company: a & o buero Filmproduction GMBH

Scientific Field: Behavioral Sciences/ Environment/ Nature

Year: 2009

Country: Germany

It is a stunning sight: hundreds, thousands, tens of thousands of fish, birds or insects moving as fast as lightning and as if on command. Except that there is no command, no pilot, no mastermind pulling the strings. It is the swarm itself, which acts as a collective and is capable of behaviour that far exceeds the capabilities of its individuals. It is a form of intelligence that is radically different from our own: "swarm intelligence". For us humans, this type of intelligence is completely foreign, but it is possible for us to learn from the swarms. Scientists the world over are attempting to discover their secret. Not just biologists however; recently engineers and cyberneticists have joined in the hunt. A journey into the

mysterious and complex world of swarms, and at the same time into the very sources of intelligence.

7. Does my brain have a sex?

Original Title: Mon cerveau a-t-il un sexe?

Duration: 52'

Producer: CNRS Images

Director: Laure Delesalle

Company: CNRS Images

Scientific Field: Brain/ Neurophysiology/ Medicine

Year: 2010

Country: France

Pourquoi les hommes et les femmes n'ont ils pas le même comportement? Est-ce que les capacités intellectuelles des hommes et des femmes sont différentes? Entre scientifiques, le débat est vif car masculin/féminin, la question n'est jamais neutre. De la recherche biologique aux dernières avancées en sciences humaines, la réalisatrice mène l'enquête et secoue les idées reçues. Elle s'aventure sur des territoires autonomes et questionne tout ce qui participe à la construction d'une identité sexuelle: anatomie du cerveau, imagerie cérébrale, rôle des chromosomes, des gènes et des hormones, incursion dans les domaines de la préhistoire, de l'éducation et de la psychanalyse.

8. Electric mind, The*

Original Title: The electric mind

Duration: 60'

Producer: Nadav Harel

Director: Nadav Harel

Company: Noprocess Films

Scientific Field: Neuroscience/ Psychiatry/ Medicine/ Technologies/ Culture/ Anthropology

Year: 2010

Country: Israel

The prospect of manipulating thought and behavior with machines has captured human imaginations for decades, but recent conceptual and technological advancements in brain sciences are turning science fiction into genuine medical reality for the millions suffering from brain disorders. *Electric Mind* is a filmic journey into the heads and hearts of four people suffering from debilitating brain disorders: Depression, bipolar disorder, epilepsy and dystonia. As these people, male and female, old and young, undergo groundbreaking treatments involving intervening with the electric activity of their brain. Questions arise about medical ethics, our brain-body and brain-mind interactions and about the essence of our personal identity.

* With the support of Embassy of Israel in Athens

9. Fireball of Christ

Original Title: Fireball of Christ

Duration: 50'

Producer: Richard Reisz

Director: Martin O'Collins

Company: TV6 Limited

Commissioned by: National Geographic Channels

Scientific Field: Geology/ Space/ Astronomy

Year: 2010

Country: United Kingdom

In 312 AD the Roman Emperor Constantine saw a bright light in the sky which convinced him to convert to Christianity –and so changed the history of the world. Now a team of geologists have identified a meteorite crater in Italy which they think could explain the origin of this mysterious light. The discovery could also provide an explanation for a local legend which recounts how members of a pagan cult were overwhelmed by a blinding light in the sky. The cult too immediately converted to Christianity. All these claims have been dismissed as nonsense by other geologists who think the “crater” is just a manmade pond for livestock. But in the local town of Secinaro the mayor likes the idea that his town could be the site of a meteorite impact, and gathers together a team of international experts to try to come up with an answer.

10. Hydrogen at wheel

Original Title: Hydrogène au volant

Duration: 20'

Producer: CNRS Images

Director: Luc Ronat

Company: CNRS Images

Scientific Field: Environment/ Exact Sciences/ Technologies

Year: 2010

Country: France

The use of fossil fuels takes part in the increase of greenhouse gases, and influences on the climate. Transports, especially cars, play an important part in this pollution. Thinking about the place of clean energies in tomorrow energetic choices is getting more and more necessary. This film gives an overview of the French research on hydrogen energy, applied to transports. It shows obstacles to the emergence of a mass market for hydrogen cars, solutions that loom in the laboratories and life-size trials.

11. Immortal

Original Title: Immortal

Duration: 53'

Producer: Tony Wright

Director: Sonya Pemberton

Company: December Films

Scientific Field: Biology/ Genetics/ Medicine

Year: 2010

Country: Australia

Astonishingly, science has uncovered the key to unlimited life -and a secret of endless youth. Deep in the DNA of a humble pond creature an Australian-born scientist co-discovered an "immortalisin" enzyme, a chemical catalyst that can keep cells young, forever. In 2009 this discovery was awarded the Nobel Prize for Medicine. But, this is no simple "cure" for ageing. For the same enzyme that fuels endless youth, also fuels cancer. *Immortal* reveals the inner workings of this biological paradox and its remarkable impact on ageing, stress, disease and cancer.

12. Is the magnetic pole about to flip?

Original Title: Is the magnetic pole about to flip?

Duration: 52'

Producer: TGA Productions, IDEACOM International, CNRS Images

Director: Stéphane Nicolopoulos & Yanick Rose

Company: TGA Productions

Scientific Field: Geomagnetism/ Geophysics/ Space/ Astronomy/ Climate Change and Effects

Year: 2010

Country: France/ Canada

The earth has two north poles, the geographic and the magnetic. The magnetic pole is the one that attracts the needles of our compasses. It's always moving, but could it be about to flip? What will be the impact? Paleomagnetism has taught us that the magnetic pole flips regularly, going from north to south and vice versa, once every 250.000 years on average. However, the last inversion occurred 780.000 years ago! Are we on the eve of such a major event? *Is the Magnetic Pole about to Flip?* follows Canadian geophysicist Larry Newitt and French geologist Jean-Jacques Orgeval as they meet astronauts, marine biologists, paleo and archeomagneticians, in an attempt to understand, measure and explain the consequences of a pole inversion.

13. Kill to be born

Original Title: Tuer pour naître

Duration: 28'

Producer: CNRS Images

Director: Luc Ronat

Company: CNRS Images

Scientific Field: Biological control/ Experimental sciences/ Wildlife/ Nature

Year: 2010

Country: France

Parasitoid insects are veritable serial killers, and they play a major role in the regulation of insect populations. Europe-wide scientific research on the lines of a criminal investigation reveals how these killers behave and what remarkable capabilities they have. In basic research, parasitoids make excellent models for behavioral ecology studies. They are also used in applied research, notably for biological control, where they can serve as precious auxiliaries for controlling crop pests. Parasitoids still have many secrets to reveal, and new research avenues are opening up.

14. Last days of Homo sapiens: Episode 1 & 2

Original Title: Männsklighetens sista dagar

Duration: 54' X2

Producer: Magnus Sjostrom

Director: Magnus Sjostrom

Company: UR (Swedish Educational Broadcasting Company)

Scientific Field: Nanotechnology/ Space/ Astronomy/ Culture/ Anthropology/ Genetics/ Technologies/ Climate Change and Effects

Year: 2010

Country: Sweden

Dinosaurs, mammoths and Neanderthals are the celebrities of Earth's evolutionary history book. Once they ruled their worlds. Then they went extinct. And they are far from alone. More than 99,9% of all species that have ever lived no longer exist. To get rid of Homo sapiens may turn out to be trickier. They will soon pass seven billion in number and inhabit all corners of the planet. One could come to the conclusion that man, thanks to his advanced technology, has made himself nearly immune to extinction. But as this TV-series will show, there are in fact quite a few threats to his existence. Some of them are well-known and are

derived from the violent forces of nature, like pandemics, supervolcanos and asteroid impacts. Other threats are self-created and so new that no-one yet can estimate the extent and seriousness of the potential hazard. In the form of a Top-Ten list, we present the phenomenons which have the capacity to reduce us humans dramatically in numbers. We visit laboratories around the world which open up new areas of knowledge and we meet the scientists who begin to take an interest in the potential danger that follows that progress.

15. Life in hell: Survivors of salt & acid

Original Title: Life in hell: Survivors of salt & acid
Duration: 52'
Producer: Thierry Berrod
Director: Thierry Berrod
Company: Mona Lisa Production
Scientific Field: Extremophiles/ Environment/ Nature/ Wildlife
Year: 2010
Country: France

In these environments, micro-organisms rule. In order to thrive, certain animals have made strange adaptations. Scientists are studying how they manage to live in water as acid as vinegar or as alkaline as washing powder. Living in Lake Retba in Senegal are square extremophilic bacteria that produce a red pigment to withstand the high salt concentration. The concentration of bacteria is so high that the lake has become completely pink. In Lake Natron in Tanzania, extremophilic fish swim in ultra-saline water with a temperature close to 48°C. In Lake Mono in California, the edges of the lake are home to the largest population in the world of Alkali flies. To enable them to live in this saline hell, 10 times saltier than the sea, each Alkali fly is equipped with a scuba system. In Lake Owens, the amount of arsenic dust carried by the wind is comparable to the quantity of dust generated when the Twin Towers collapsed. Yet, in this diabolical lake, life goes on its merry way. In New Zealand, fly and leech larvae manage to live in fluorescent green water, as acid as our stomach juices. The list of extremophiles and their ecosystems has only just started to be drawn up. Their recent discovery has already enabled the formulation of new hypotheses about life on Earth... and perhaps elsewhere.

16. Light bulb conspiracy, The

Original Title: The light bulb conspiracy
Duration: 75'
Producer: Joan Ubeda
Director: Cossima Dannoritzer
Company: Media 3.14, Article Z
Scientific Field: Design and Engineering/ Environment/ Sustainability
Year: 2010
Country: Spain

Does the ever-lasting light bulb really exist? How can a computer chip “kill” a product? Why are millions of computers shipped round the world to be dumped rather than repaired? How did two New York artists extend the life of millions of iPods? Using rare archive footage and hitherto unseen internal company documents, this film traces the untold story of Planned Obsolescence, from its invention in the 1920s to present-day stories involving cutting edge electronics, while charting the growing spirit of resistance amongst consumers, and asking what the alternatives are if the modern economy and the planet are to survive.

17. Making stuff: Smaller

Original Title: Making stuff: Smaller

Duration: 60'

Producer: Chris Schmidt

Director: Chris Schmidt

Company: WGBH Educational Foundation

Scientific Field: Technologies

Year: 2011

Country: USA

How small can we go? Could we one day have robots taking "fantastic voyages" in our bodies to kill rogue cells? The triumphs of tiny are seen all around us in the Information Age: transistors, microchips, laptops, cell phones. Now, David Pogue takes NOVA viewers to an even smaller world in *Making Stuff: Smaller*, examining the latest in high-powered nano-circuits and micro-robots that may one day hold the key to saving lives.

18. Mission Earth

Original Title: La biodiversité menacée: Quelles solutions pour demain?

Duration: 52'

Producer: Diane Riethof

Director: Bernard Guerrini & Matthias Schmidt

Company: GEDEON Programmes

Scientific Field: Biodiversity/ Environment/ Nature/ Wildlife/ Climate Change and Effects

Year: 2010

Country: France

An investigation on the stakes of the protection of biodiversity. Stereotypes on the preservation of the environment and biodiversity are many. But reality is more complex. An international team of top scientists, including American, British and French, are confronted with the issue in Mozambique and Madagascar. Their aim: scan and inventory the lost worlds of the Indian Ocean, namely the primary forests of Mozambique, labeled a global conservation hotspot and the south coast of Madagascar, a hostile area buffeted by the moods of the Antarctic, which has never been explored by scientists and harbours hundreds of unknown species. In parallel to the results of the scientific expedition, this one-off intends to investigate on a more global scale into the financial, political and economic stakes behind the preservation of nature.

19. Mystery files: Hitler

Original Title: Mystery files: Hitler

Duration: 26'

Producer: Marc Tiley

Director: Marc Tiley

Company: Parthenon Entertainment Ltd.

Scientific Field: Medicine/ Experimental sciences

Year: 2011

Country: United Kingdom

What made Hitler the monster he became? Why did he rise to such a dominating position of power over the German people? These are the enduring mysteries that continue to occupy historians today. One thing scholars agree on is that the experiences of war in-between 1914-1918 coloured every decision Hitler ever made subsequently. So what happened to Hitler in the melee of trench warfare to make him take a fateful decision to go in to politics, someone who before the war was a directionless drifter? This programme analyzes the very latest neurological research into shell shock and trauma, it retraces Hitler's time as a frontline soldier, and examines the medical history of Hitler's gas poisoning and his period at a psychiatric wartime hospital that the Nazi Party later tried to cover-up; and it explores an American top-secret report from 1943 to discover how Hitler's war experiences led to him suffering what some historians believe to be an extreme psychological disorder, hysterical blindness, known today as conversion disorder.

20. Mystery files: Isaac Newton

Original Title: Mystery files: Isaac Newton

Duration: 26'

Producer: Amy Foster

Director: Amy Foster

Company: Parthenon Entertainment Ltd.

Scientific Field: Medicine/ Experimental sciences

Year: 2011

Country: United Kingdom

Isaac Newton, renowned 17th century scientist and mathematician -the man credited with the discovery of gravity. But surprisingly, Newton's advances in science were of less personal importance to him than his extensive alchemical work and his heretical and obsessive religious beliefs. As more of Isaac Newton's writings come to light, a new picture is being painted of the great man. Rather than a logical and altruistic character, Newton is being revealed as a secretive, paranoid and obsessive person. Modern psychiatrists now suggest that he was the most classic case of Asperger's Syndrome in history.

21. Nights with my enemy

Original Title: Les nuits avec mon enemy

Duration: 34'

Producer: Patrice Goldberg

Director: Veronique Neczyporenko & Patrice Goldberg

Company: RTBF

Scientific Field: Health/ Medicine/ Experimental sciences

Year: 2010

Country: Belgium

A cause du stress, des exigences et des trépidations de la vie quotidienne, nous dormons deux heures de moins, en moyenne, qu'il y a un siècle. Quelles sont les conséquences d'un sommeil de plus en plus court? Des chercheurs, notamment belges, travaillent jour... et nuit pour comprendre les rouages mystérieux de ce besoin vital si particulier. Comment fonctionne notre sommeil? Peut-on s'en passer? A quel prix? Obésité, diabète, troubles immunitaires, trous de mémoire, vieillissement prématuré: autant de problèmes qui peuvent avoir un lien direct avec un mauvais sommeil. Et que dire alors des cas extrêmes? Des maladies et troubles spectaculaires du sommeil? Vivre ses rêves en vrai, guérir de la maladie de Parkinson l'espace d'une nuit, dormir debout et même littéralement tomber de sommeil: c'est le lot quotidien des personnes dont Matière Grise a recueilli le témoignage...

22. What happened before the Bing Bang

Original Title: What happened before the Bing Bang

Duration: 59'

Producer: Peter Leonard

Director: Peter Leonard

Company: BBC

Scientific Field: Cosmology/ Space/ Astronomy

Year: 2010

Country: United Kingdom

The biggest question that science can possibly ask is "where did everything come from"? It's a question that we have struggled with ever since we could think –and for nearly a hundred years we have had the answer: the Big Bang explains the mystery in one fell swoop. The trouble is though, it doesn't quite work. *What Happened before the Big Bang* takes the ultimate trip into the unknown to explore a dizzying world of cosmic bounces, rips and multiple universes; all alternatives to the current orthodoxy –and discovers that some of them might even be true. Just like the Big Bang used to be.

23. Wonders of the solar system: Dead or alive

Original Title: Wonders of the solar system: Dead or alive

Duration: 59'

Producer: Paul Olding

Director: Paul Olding

Company: BBC

Scientific Field: Space/ Nature

Year: 2010

Country: United Kingdom

Professor Brian Cox visits some of the most dramatic locations on Earth to explain how the laws of nature create astonishing natural wonders across the Solar System. Our planet is geologically alive, a place of constant change and renewal. Earth's beating heart is its hot molten core Earth that fuels the volcanoes of the world. Without this source of heat trapped when the planet was first formed, Earth would be a dead world –a world much like Mars. Brian travels to Hawaii, to stand on top of the highest volcano on this planet to show how the power of heat has shaped the rocky planets. Yet, even at 4.200m high he would be standing in the shade of the tallest volcano in the solar system. The Martian giant, Olympus Mons, rises 27kms above the Red Planet but it is the petrified, cold memory of once geological thriving planet. No eruptions have changed Mars for millions of years.