



Festival della Scienza

Presentation of the Festival of Science 2005

From the 27 October to the 8 November 2005, Genoa will once again be a major stage for the extraordinary world of scientific knowledge.

The third edition of the **Festival of Science** keeps the successful format of previous years which has made it a major event on the European and international scientific scene (165,000 visitors in 2004).

"Frontiers" is the theme of 2005, which will link, as a leitmotiv, **nearly 250 events** - conferences, workshops, shows and performances - **that make up the Exhibition.**

Frontier is envisaged as a no man's land that separates the known from the unknown; in constant flux, it is a border between different forms of knowledge that has to be overcome in order to tap new forms of inter-disciplinary research.

Festival Participants include prestigious names from science and the arts: scientists, philosophers, intellectuals and artists will meet the public in discussions that will interest both layman and expert alike.

A large part of the 2005 event is dedicated to the school world: exhibitions, interactive didactical workshops, projects carried out in collaboration with the Region's Education Authorities and with the Ministry of University and Research ("MIUR").

The Festival of Science confirms this year its function as an **attractor of knowledge**, a workshop able to experiment new codes with which to represent scientific knowledge. The Festival of Science is widely recognised as a powerful conduit for the presentation and transmission of the most promising results of scientific research.

The Festival highlights the rigour and imagination that characterise the world of science and illustrates its beauty and fascination in a way that transforms the visitor from simple spectator into an active participant.



Based on an idea developed by **Codice, Idee per la Cultura**, and by the Italian "**Istituto Nazionale per la Fisica della Materia**" (INFN), the Festival of Science is organized by the **Associazione Festival della Scienza** in partnership with **Progetto Italia** by **Telecom Italia** and with the **Compagnia di San Paolo**.

CONFERENCES AND OPEN FORUMS

More than 130 meetings will be held throughout the Festival: conferences, analyses of single topics and open forums; 130 chances to explore the multi-faceted aspects of contemporary scientific. Pride of place goes to **physics**, to mark the centennial of Albert Einstein's birth and the drawing to a close of UNESCO "The International Year of Physics". Genoa' Festival of Science, midway between an exhibition and a celebration, will be inaugurated by *Robert Laughlin*, Professor at Stanford University, Chairman of KAIST in Seoul and Nobel prize for physics. In a lively analysis of Einstein's life and achievements, Prof. Laughlin will explain why the biggest mysteries of physics shouldn't be looked for in the furthest outer reaches of the universe, but rather much closer to our everyday life. With a hint of irreverence that has made him famous as a leading voice in his field, Prof. Laughlin will propose a radically new template for physics. With the typical irreverent style of a man who has reached the top peaks of scientific authority, he will present a new kind of "emergent physics" that ought to be "seriously reconsidered".

Some of the world's most famous physicists and historians of the sciences will join Prof. Laughlin in Genoa; among them *Roger Penrose*, the author of a monumental work on the synthesis of current physics, *Gino Segrè*, *John Stachel* who will speak about Einstein as a "creator and rebel". Great Italian physicists, such as *Gabriele Veneziano*, pioneer of the theory of strings, and *Sandro Stringari*, the expert and key reference source in the research on cold atoms. Forever in the shadow of Einstein, *Brian Greene*, the best-selling author of world-renown on the subject of astrophysics, will transport visitors on a journey of reflection on the peculiar aspects of time and space, which jointly shape the "weft" of



the cosmos, an objective that will also and most certainly be highlighted by Giovanni Bignami.

Finally, the great Cambridge cosmologist *Martin Rees*, British Royal Astronomer, will present his original vision of the cosmic structure -that has already been published in numerous successful books- as light reflected through a souvenir including an analysis of Albert Einstein's heritage.

Giorgio Parisi, the world's leading scientist in Italian research, will speak on the physics of complex systems in everyday life. The revelation of the architectural component of the physical world in sport and cooking will be demonstrated in an unconventional way by the Russian physicist *Andrei Varlamov*.

Alvaro de Rujula and other experts coming from the CERN in Geneva, will then explore the last frontier between matter and antimatter.

The list of personalities attending this event will include experts in the history of **physical and mathematical sciences**. As in past years, some famous friends of the Festival have assured us of their intention to attend. Among them, *Margherita Hack*, *Enrico Bellone*, *Pietro Greco* and *Piergiorgio Odifreddi*.

Following the great success of his book on the paradoxes of quantum mechanicals, *Amir Aczel*, on the other hand, is bringing to Genoa his fascinating research on chance and the calculus of probabilities; this will be an occasion to debate the probability strategies in gambling and in everyday life, i.e. in business and even love affairs.

Benoit Mandelbrot, the father of fractals, will focus on the application of mathematics to financial markets.

The frontiers of human subconsciousness, enshrined in the deep recesses of the mind, will be explored by experts of **neurosciences**, a subject which has always been a popular subject of interest at the Festival. *Steven Rose*, the author of a provocative book on the "21st-century brain" and on the "risks of neuro-reductionism"; *Alberto Oliverio* with his research on mind and the emotions; *Richard Wiseman*, with his amusing references to the "attention factor", and *Giacomo Rizzolatti*, one of the discoverers of "mirror neurons", which are responsible for the imitation processes and may prove to



be a key factor towards a new and revolutionary understanding of the human brain.

Neil Gershenfeld and *Angelo Raffaele Meo* will speak jointly of the possible future metamorphosis of the personal computer into a quasi "personal fabricator".

Throughout the Festival, special attention will be devoted to the passage from real to virtual mind, which will lead us to focus on genetics and human genome, a further frontier of science and technology which nowadays is rapidly becoming a burning issue. The aim is to offer visitors the chance to actively take part in controversial debate on such themes as these, with a new degree of awareness.

Some major Italian genetics experts, such as *Andrea Ballabio*, *Alberto Mantovani* and *Carlo Alberto Redi*, and their international colleagues, amongst them being *Jürgen Simon*, the British researcher *Linda Partridge* and the Parisian oncologist *David Khayat*, will debate on stem cells, genetic engineering, genes' databases, gene-based therapies and therapeutical cloning.

The philosopher *Giulio Giorello* will engage in dialogue with the biologist *Edoardo Boncinelli* about genomics and immortality.

The geneticist *Steve Jones* will be joined by the ethologist *Enrico Alleva* in the presentation of the latest and intriguing research on contemporary evolutionary **biology**. Evolutionism continues to be a re-occurring theme due to the repeated attacks of skepticism it has undergone and continues to undergo in our Country as well. It will be dealt with by the Italian anthropologists, congregating in Genoa for their National Congress in order to coincide with the Festival. Important contributions will be given by scientists, historians and philosophers as *Giulio Bersanti*, *Orlando Franceschelli* and *Vittorio Sgaramella*; carrying out the debate "Darwin Yes, No, Maybe", they will trace a line back to the original and controversial attempt to eliminate the Theory of Evolution as taken from the Italian school of thought.

The final climax of the Festival's biological programme will be a wide-open international forum on the "Boundaries of Science" with *Craig Venter*, pioneer explorer of post-genomics and genetic sequencing; *John Brockman*, literary agent and



Chairman of the *Edge Foundation*, the most renowned American high club for the diffusion of knowledge; *Alun Anderson*, director of *New Scientist* from 1999 to 2004.

A vast section of the exhibition will be focused on the frontiers of the **Planet Earth**, presented through the exploration of, the outstanding photography and the investigation on, the subject of nature. *Richard Fortey*, brilliant naturalist of the London British Museum, will evoke images of his particularly unique travels around the world, of those key locations where the understanding of the dynamics of the earth's surface and the evolutionary character of our planet may be better realized.

An intimate history of the Earth, a fascinating description of plate tectonics, midway between science, history and literature.

Ken Zweibel and *Jefferson Tester* will be speaking of new sources of energy, whereas the archaeologist *Brian Fagan* will focus on major climate changes in most ancient and recent times in human history. Finally, *Richard Ellis*, voyageur and naturalist artist from New York, will entertain us with the vasteness of the ocean and its mysteries.

Let's shift from the outer planet Earth to its inner diversity.

How the **tight interactions between genes, populations and languages** have been marking the history of human settlements; a spider's web of mechanisms explained by major international experts such as the Stanford linguist *Merritt Ruhlen*, author of the

Atlas of the World's Languages, and by the most illustrious pupil of the glorious Russian school of linguistics, *Sergei Starostin*.

Staying with the theme of genes and languages, we'll learn more about "linguistic dying out" thanks to *Daniel Nettle*, author of a book highlighting the disappearance of ancient idioms, and *Luisa Maffi*, founder of "Terralingua", a Canadian scientific society dedicated to the defence of biologic and cultural diversity, seen as two sides of the same coin.



Thus, the Festival will dedicate an important section to the multifaceted problems of **diversity**, intended as biological, linguistical, cultural and even gastronomical issues. This latter aspect will be touched upon by *Carlo Petrini*, Chairman of SlowFood International, who will engage a debate on the "Worldwide Food Science" with the geneticist *Marcello Buiatti* and with the President of the "Regione Toscana", *Carlo Martini*.

The Festival will play, as usual, with the **Boundaries Between Science and Non-Science**, fully aware of their interactive characters, and of the fruitful consequences of profound contamination that can occur between different languages. Renowned philosophers will meet in Genoa to discuss this theme; among them *Remo Bodei*, to take part also in the intellectual duel i.e. "man of the arts vs. scientist" with *Enrico Bellone*. And then *Salvatore Natoli*, *Aldo Giorgio Gargani* and *Maurizio Ferraris* with his "Ontology of the Mobile Phone", *Achille Varzi* and *Roberto Casati* with their logical yet "insurmountable simplicities".

Writers and artists as *Lella Costa*, *Patrizia Bisi* and *Ludovico Einaudi* will face their own **perceptions of science**, which are often a mix of hopes, uncertainties and harmonies. We will also journey deeper into **Alice in Wonderland** with *Stefano Bartezzaghi*; we'll focus on **psychoanalysis and war** with *David Megnagi*; on **theatre and science** with *Carlo Sini*; on **communication philosophy** with *Andrea Carlo Moro*, *Nicla Vassallo* and *Ugo Volli*; on the role of **women in science**.

Some open forums will deal with the **national and European scientific research policies**: the dialogue will be carried out by prestigious names of the scientific world and by representatives of the Institutions in the field of research. They will be recalling the work and commitment of the former minister and European Commissioner to Research *Antonio Ruberti*.

We'll deal with **natural history of economy** with *Paul Seabright*, whereas the illustrious Harvard astronomer and historian of the sciences *Owen Gingerich* will speak on the theme "In search of a Lost Book".



EXHIBITIONS AND WORKSHOPS

"Hands-on", in the real sense of the word: this keyword represents the common essence of **more than 50 interactive and didactic settings**, inspiring visitors of any age to explore the boundaries of sciences, taking advantage of the often thin links which bind science to other visions and interpretations of reality, such as artistic intuition. Thus, science within the Festival will become something to discover, to touch, to constantly experience in a dialogue with other modes of human expression.

The brand new 2005 edition of the exhibition **Simple and Complex** includes 26 exhibits, divided into three sections (Geometry, Matter and Motion), which invite the visitor to explore in a very interactive and highly spectacular way the most current topics in scientific research, such as the science of complexity and the theory of chaos.

The main theme is the exploration of complex systems, and the way they condition so many aspects of the whole world we are surrounded by: in the geometric shapes, that is groups of dots structured by their spacial relationships with each other; in matter, deriving its multifaceted aspects and behaviours from the interactions between the elementary particles; and in motion, where the relation between position and time may be at the origin of unpredictability and chaos.

Thus, visitors will have the opportunity to grasp the complexity in space, matter and space-time relations. Starting from easy-to-watch phenomena of everyday life, they will be given hints taking them deeper into several branches of science, from meteorology to statistic physics, from hydrodynamics to evolutionary biology, finishing at last with economy and sociology.

They will be able to produce whirls of sand, electrical discharges similar to lightning; miniature tornados, thus being able to observe their evolution; to generate a spectacular vortex of fire; to create clouds and, finally, to study the behaviour of convection cells in liquid when subject to heat.



Water, Air, Earth and Fire is a new exhibition with a new concept, inspired by the dialogue between contemporary art - both historic and avant-garde - and the new frontiers of scientific research. The itinerary will be such as to include side-by-side works of art alternating with sensory installations, experiments and scientific videos.

The point of departure for the exhibition is itself based upon the theme of creativity: the moment in which man understands he can manage the primordial elements, thus giving life to the very first forms of art and science. The concourse of the exhibition continues on to include a series of approx. twenty works of art, from Kounellis' *Daisy of Fire* up to a work inspired by Eliasson, which will be exhibited in a dialogical correspondence to many other videos and scientific experiments, such as for example *Galileo's Machine*, built by Vergara Caffarelli.

The outcome will result in a series of cross-references on different levels concerning the properties and characteristics of the single element, as well as cross-references between the four elements.

Videos and specific focuses will highlight the role played by energy seen as an ideal meeting point and the empirical evidence of the interaction between the elements.

A great sensory and multimedia installation located along the concourse will explore in a multifaceted manner the sensory component of nature: sounds, smells, sight and touch perception, where visitors may permit themselves to becoming emotionally involved in responding to strong and suggestive stimuli.

From Light to Light presents a completely alternative itinerary on the relation between science and art. The aim of the exhibition is to evoke in the visitors the same ability to observe, to be intellectually challenged thereby becoming inquisitive which is a common trait of the scientist and the artist.

The exhibition settings portray those phenomena that depend on the presence of light and colour in the environment, such as the nuances of colour of the sky, the chromatic tones of the air, the clarity and obscurity of shadows, the rainbow.



The spectacular "indoor" reproduction of natural phenomena will take the form of an actual launching pad for an unpredictable voyage starting from the observation of reality and reaching the creation of its model, which will be verified according to scientific methods.

The "hardware" simulation, i.e. a reproduction that is not computer-assisted, will be presented in the unique form of spectacular construction. Such an approach was chosen to make it possible for visitors to "observe" a model just as they would do with the real object.

Showing side-by-side paintings by famous artists (Van Gogh, Monet, Leonard, Caravaggio, Velasquez) testifies how the artist too has the ability to grasp an aspect of nature - at times tenuous, at times rare, but however "physically real" - and to "depict it", so that it becomes an effective point of observation of reality.

It's true: the word "radioactivity" has assumed terrifying connotations throughout the 21st century. But on the other hand, radioactivity is an absolutely common natural phenomenon as well, found in stars, in the heart of the Earth, and even inside our bodies.

The exhibition **Radioactivity, one Side of Nature** is aiming to help visitors, and high school students especially, to know more about it, its peculiar characteristics, effects and applications, along the exhibition concourse that is divided into four sections:

Radioactivity in the Universe; Radioactivity in the Biosphere; Radioactivity At Work; and finally the ongoing research carried out in Genoa on particles and astro-particles.

Visitors will be provided with an extraordinarily wide range of tools, thus having the opportunity to visualize and measure elusive cosmic and natural radiations; a hodoscope to reveal the trajectory of cosmic rays, geiger counters to measure the radioactivity levels, a spectrometer to value the radiative energy, a magnetic trap for plasma.



The numerous multimedia installations will guide the public in a fascinating interactive journey along the outer extremes of nuclear physics: the revelation of gravitational waves, the study of solar neutrinos, the research on applied super-conductibility.

The exhibition **100 Suns** will deal with the same theme of radioactivity, but this time the focus will be instead on the most destructive aspects of the phenomenon, showing the spectacular images collected by the American artist and photographer Michael Light. An overview of the history of nuclear explosions carried out in the US from 1945 to 1962 will provide testimony to the consequences of a "wild" testing policy, that was often carried out without even the most basic precautions for both the population and the environment.

Earthsong is, at the same time, a celebration of the natural forces shaping our planet and - on the other hand - a condemnation of the damages engendered by global climatic changes.

From the icecaps of the Arctic to warm tropical oceans, from sand deserts to other deserts covered with snow, from the Alps to the equatorial forests, these amazing landscapes narrate to the public the Earth's wonders: art and science fusing together in a spectacular gallery of giant aerial photos, coloured as though they were abstract paintings. Dedicated to visitors of different generations, **The Secrets of Dinosaurs** is a workshop/exhibition focusing on the findings of the most recent archaeological excavations in Patagonia, giving the public the chance to investigate the life and extinction of these big reptiles, using techniques and instruments peculiar to palaeontology.

Visitors can even carry out their own hands-on excavations within simulated archaeological areas, seeking fossils, closely watching the cleaning and restoration process of a find, while still enclosed within its original protective material.

The technological area is extremely interesting, as it shows the applications of robotics in the analysis of animals' behaviour, while presenting some innovative scientific instruments such as the geo-radar, a miniature dirigible, and a remote-controlled research unit. At the end of the concourse the skeletons of three dinosaurs (one of them being



a cub) provides evidence of the stateliness and peculiarity of these ancestors, which - tens of millions of years ago - populated Gondwana, the great Southern continent.

The leitmotiv of the exhibition **The Number Rooms** signifies "to discover while playing". Cute rabbits - the symbol of the famous series of Fibonacci, i.e. the numeric progression which seems to provide an explanation to several growing processes - will be guiding visitors from room to room, in order to discover the magic of numbers, their properties, their applications in everyday-life, in games, in art, and in new technologies.

The Sea Universe and **The Polar Frontiers: Man's Ability to Adapt to Extreme Environments**: both exhibitions are dedicated to borderline territories.

The former, based on the images by oceanographer Richard Ellis, will unveil the secrets of aquatic life and will acquaint the public with the most fascinating marine landscapes while exploring the oceans' depths and its mysterious inhabitants.

The latter will offer visitors the necessary tools, such as: exceptional photos, videos and testimonies of the experts, enabling them to perform an investigation of a unique history: that of human survival inside an environment of extremes.

An extremely interesting discovery is represented by didactic and interactive workshops, dedicated to the public youth.

The aim of the two workshops **Playing At Inventors** and **Expand Your Senses**, organized by the prestigious Smithsonian Institute of Washington, is to teach the art of invention both to children and to their families, thus creating an inter-generational relationship.

Starting from common-use objects and materials, such as paper, straws, clips and spools of thread, the aspiring inventors are compelled to use their own creative thought, to find the proper methods to be able to translate their ideas into form.

The workshop **Scientific Police At Work** focuses on investigation: the exhibition's younger visitors will be



divided into groups and will turn themselves into real detectives, aiming to discover the culprit of a murder with the support of state-of-the-art techniques, such as DNA fingerprinting.

Open Bio Lab is dedicated to all younger visitors willing to explore the frontiers of biology and genetics: among the activities proposed, participants will be able to extract DNA, in order to determine whether some foods contain OGM substances or not, or e.g. to use genetics in order to carry-out an investigation.

The workshop «**Danger! The New Children's Emergency Helpline 114**», realized with the support of "Telefono Azzurro Helpline", has a dual purpose: to raise young people's awareness of emergency situations on one hand; on the other, by means of training and an info-action, to show teenagers how to respond to emergencies.

Dedicated to an inter-generational public, will be the workshops entitled: **Rome's Planetarium Goes on Tour, A Dance With Physics** and the exhibit **Tsunami: Discovering the Secrets of Seaquakes**.

The first will present a selection of eight different live-shows on the wonders of the universe performed inside a six-meter-high dome made expressly for this purpose.

Through a study on the movements and interactions of tango dancers, the second workshop will convey an explanation of the physical principles involved in sport activities.

The third will focus on the explanation of Sumatra's catastrophe and a description of the under-sea quakes which occurred in the Mediterranean Sea.

SHOWS AND SPECIAL EVENTS

According to the Festival's tradition, the 2005 edition will present an elaborate list of shows and special events. Their purpose will be to establish a relationship between the different languages, each of which tries to give an interpretation of reality while retaining its own peculiar aspects.

Many art forms, such as circus shows, theatre performances, cinema, dance and music, games and animations will congregate



at the Festival, honouring Genoa once more as the Capital of Science.

The multimedia show **The Children of Uranium** will be presented in a world preview for Genoa's Festival by the director Peter Greenaway, in collaboration with the lyric director Saskia Boddeke and with the composer Andrea Liberovici. The show is inspired by the 2005 celebrations for the International Year of Physics, Einstein's centennial and the 60th year Anniversary of the atomic bomb and will be an occasion to enquire into the effects produced through the discovery of uranium and the research on nuclear fission.

The performance, fusing theatre, music and video, is dedicated to eight of the most prestigious "children" of uranium, i.e. personalities who predicted this discovery, made it possible, exploited its later applications, and finally suffered its consequences: Isaac Newton, Joseph Smith, Madame Curie, Albert Einstein, Nikita Kruscev, Michael Gorbachew, George W. Bush.

A further exclusive preview for Italy will be **Qed. A Day in the life of Richard Feynman**, presented after its successful release in the United States, narrating the life of this great physicist, 1965 Nobel Prize winner, during the course of ordinary work and study.

A monologue interlaced with several call phones with various people narrates the way he prepared a lesson, the way he reflected upon the responsibility of physics, his consideration of the work of scientists, the expression of his eclectic talent during the rehearsals of a show, his personal reaction and the way in which he came to cope with the news of being terminally ill with cancer. We gradually discover Feynman's histrionic and multifaceted personality; a man defined by the great physicist David Goodstein as "the star of my life".

An actress, Lella Costa, and a physician, Riccardo Fesce, dialogue about **Neurons and Soul** from two apparently irreconcilable points of view.



He is a neurophysiologist; his orientation is based on neurons, the nerve cells which enable our brain to read, interpret and remember every single instant of our lives by means of their complex and changeable interconnectedness.

She is an actress, a champion of social causes, a true poetess of female spirit; her background is literature, music, cultural, social and political engagement. Together, they will try to grasp the thousands of multifaceted aspects of mind and soul.

Drawn liberally from Italo Calvino's work, in particular from the «Cosmicomiche» ("the Cosmic Comedies"), **Cosmic Moon** presents a dialogue staged between Calvino and Ofwfg, a mutant creature who experienced all events of the history of the Cosmos.

Through an interlacing of tales that oddly support the most different and contradictory scientific hypothesis, the show will present a fanciful reconstruction of the different phases of a curious imaginary evolution, full of charm and interest; it's a sort of comic and surreal History of the World, made ridiculous and fanciful through the filter of memory.

Alice in the House of the Mirror revisits all the potential irony expressed in the language and in the nonsensical tale of Lewis Carroll's novel and uses it to tell the story of Alice's fanciful voyage. Alice is really a character midway between children's typical naiveté and, on the other hand, seriousness in coping with the space-time pitfalls created by the disturbing characters inhabiting a world "beyond the mirror".

It provides an invitation to continue playing what can sometimes be an extremely serious game of childhood with a "Wonderland spirit".

The magic of soap bubbles comes back, by popular demand, in **Bufaplanets**, the new creation of the Catalan company Pep Bou, awarded with numerous rave reviews.

The protagonist is a big fish, son of the wind, escaping from the theatre's routine in order to stage a phantasmagoric show where bubbles, floating in space, transform the scene into the poetic symbols of life and mankind themselves.



Another great success of last year's Festival: **Circus-Science** makes a come-back! This year's performance is entirely dedicated to fireworks.

Artists, pyrotechnists and scholars will explain the physical laws, the mathematical equations and theorems which make it possible to perform the ancient "show of the boom".

In the year of the celebrations of Einstein, here is a tribute marked by irony: the comic opera **I Cloned Uncle Albert** carries out a comparison between Albert Einstein's (true) biography and that of a clone who turned out to be definitely less...genial.

A full calendar of spectacular events will be associated with the Festival, beginning with **The Travelling Festival**. Starting from 6 October, in anticipation of the official opening, until 25 October, the Festival of Science will joyously "invade" Rome's, Milan's and Turin's railway stations with its variety of stimuli and ideas.

Here, purposefully placed "Corners of Science" will offer visitors the opportunity to meet one another, exchange knowledge and experience, through a hands-on approach, the most current themes of scientific thought and research.

The opening and closing days of the exhibition will be marked by the participation of first-rank scientists, philosophers and researchers, such as Giulio Giorello, Piergiorgio Odifreddi, Luigino Bruni, Alberto Piazza, Paolo Vezzoni, Silvio Garattini, Enrico Alleva, Marcello Buiatti.

Science as a fruitful contribution to imagination: this is the theme of the event **Suddenly, Science**. Groups of children from nine to twelve years of age will meet in an improvising contest which had never been presented in a Festival before; they will have to resort to their own imagination in order to be able to represent what science suggests them.

A jury of personalities from the scientific world, helped by the public, will judge the consistency, originality and degree of cooperation of every performance, thus establishing the classification.



The Lord of the Rings: the Mysterious Case of the Stolen

Rings involves children in a role-playing game, which is at the same time a treasure hunt, in order to shed light on the stealing of Saturn's rings and to catch the thieves. But it's impossible to recover the rings, as they have been destroyed. It will be necessary to find out the correct ingredients to re-create them.

An amusing game, but also an opportunity to investigate the characteristics of the Solar System and discover the laws governing it.

Science becomes a show in the experimental performances by Magic Andy, i.e. Andreas Korn-Muller, expert in scientific popularization and author of some books for children.

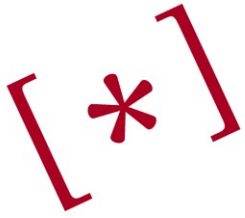
In the exhibition **High energy**, he will resort to the most spectacular special effects to unveil the mysteries of chemical energy (e.g. explosions engendered by liquid nitrogen freezing), mechanical energy (water boiling within a resonance bell), biochemical (bioluminescence effects in a big 50-litres aquarium), electric (cut of an iron plate using a welding torch).

In **Chemical Wild West**, the Wild West evolves into a stage of spectacular scientific experiments: gunmen shooting more quickly than their own shadow, hydrogen guns "shooting" the public, boiling water with vibrations, breath-taking explosions combined with fireworks.

In the exhibition **Synaesthesia: the Painting of Sounds**, the magic notes of Pergolesi's "The Mistress Servant" are "painted" during a hands-on painting performance, thus giving visitors the chance to explore one of the most crucially researched themes of the third millennium: synaesthesia.

With **Ways of Science** the Festival will touch base in Sanremo, the town of Alfred Nobel and Italo Calvino.

Focusing on the peculiar characteristics of scientific culture, the natural environment and local history, the Festival will involve Sanremo's citizens, as well as locals from the surrounding areas, offering them a programme based on themes of great scientific interest, such as the crucial role played by probability and randomness in the experience and culture of playing.



The exhibition **Square Wheels**, the events related with **CircusScience** and a number of conferences, will unveil to the public the unpredictable aspects of the same laws of physics which govern daily activities in a casino.