



**2015 INTERNATIONAL YEAR OF LIGHT
AND LIGHT-BASED TECHNOLOGIES**

OPENING CEREMONY, UNESCO, PARIS, 19 - 20 JANUARY 2015

**2015 ANNÉE INTERNATIONALE DE LA LUMIÈRE
ET DES TECHNIQUES UTILISANT LA LUMIÈRE**

CÉRÉMONIE D'OUVERTURE, UNESCO, PARIS, 19 - 20 JANVIER 2015



United Nations
Educational, Scientific and
Cultural Organization



International
Year of Light
2015



Organisation
des Nations Unies
pour l'éducation,
la science et la culture



Année Internationale
de la Lumière
2015



MESSAGE FROM THE DIRECTOR-GENERAL OF UNESCO IRINA BOKOVA



2015 celebrates the International Year of Light and Light-based Technologies. Our life depends on Light.

It is one of the main triggers of the origin of life, from the Big Bang to the modern era. It is the driver of photosynthesis and the main source of energy for most living creatures. From the beginning of time, we have been fascinated by light, by its magic and beauty. We have composed poems, art works and songs about the power of light. And this year we celebrate the efforts humankind has made to understand it.

The father of optics, Ibn al-Haytham, was the first thinker to study the behaviour and properties of light and to build instruments that detect and measure it. One thousand years ago, he published the first ever Book of Optics – Kitab al-Manazir – during the Islamic Golden Age, opening a new branch of science that would revolutionize society.

From solar panels to LED lighting, advances in optics-based applications have helped to achieve major development goals, changing the lives of millions by providing energy and heat, especially to the most marginalized. Light science brings together all scientific disciplines, making it the perfect driver to promote quality science education and to train the scientists of tomorrow.

This Year offers a unique opportunity for all countries, especially in Africa, to define a clear strategy on how these technologies can support robust Science and Innovation policies for the benefit of sustainable development. This is the goal of UNESCO. This is the spirit of our International Basic Sciences Programme. And it is highly symbolic that this year coincides with the 70th anniversary of our Organisation.

Together, let's turn on the light !

A handwritten signature in black ink that reads "Irina Bokova". The signature is written in a cursive, flowing style.

WELCOME AND OVERVIEW

JOHN DUDLEY



It is my great pleasure on behalf of the Steering Committee to welcome you all to the Opening Ceremony of the International Year of Light and Light-based Technologies 2015. From an idea initiated amongst a small number of scientific societies in 2009, the International Year of Light is now a global and multisectoral collaboration with UNESCO, having the mission to raise awareness of how light science and technology can provide solutions to challenges in areas vital for our future.

Light touches us in so many ways. On the most fundamental level, it is photosynthesis that enables the very existence of life, whilst the applications of light through photonics have revolutionized society through advances in areas such as manufacturing, communications, healthcare and energy. When darkness falls, it is light that allows our lives to continue without interruption, that illuminates our towns and cities, that enables community life, that highlights our architecture, and that forms such an important part of entertainment, art and culture.

Raising awareness of the centrality of light in our lives will be a key pillar of our activities in 2015. It is also natural to celebrate the past successes that have made this possible, and the year 2015 sees a remarkable conjunction of scientific anniversaries, from the first studies of optics 1000 years ago to discoveries in optical communications that power the Internet today. The next year will allow us to share with the world our excitement and passion for the science and applications of light.

But an International Year of Light in fact asks much more of us. The world today faces many challenges, and it is essential to seize this opportunity to enhance global awareness of the problem-solving potential of photonics in areas such as sustainable development, agriculture, renewable energy, and health. We must also highlight the use of technology and design to limit energy waste and reduce light pollution, and promote how light-based technologies provide access to information and increase societal health and well-being. As light becomes a key cross-cutting discipline of science and engineering in the 21st century, it is more important than ever to build worldwide educational capacity through activities targeted on science for young people, by addressing issues of gender balance in science, and to focus especially on promoting education in developing countries and emerging economies.

These are of course all very ambitious objectives, but in supporting the International Year of Light, the international community of workers in light science and technology has already shown its commitment to achieving these goals. We will only ever have one International Year of Light, and it is up to us to make the most of it. We have a unique opportunity during 2015 to work with UNESCO and the United Nations to show what light, optics and photonics can do for the world.

Thank you all for your continued support, and let me wish you all the best for an exciting and productive meeting here in Paris, the City of Light. Let us look forward to a tremendous year ahead, and let us aim to leave an enduring legacy that will really make a difference to the future.

A handwritten signature in black ink, which appears to read "John Dudley". The signature is written in a cursive, flowing style.

PROGRAMME MONDAY 19 JANUARY

OVERVIEW DAY 1 MORNING 08:30 – 14:00



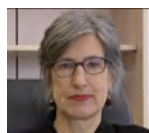
MODERATOR SESSION 1: MACIEJ NALECZ



Ban Ki Moon



Irina Bokova



Flavia Schlegel



Jane Naana
Opoku-Agyemang



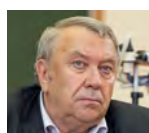
Mohamed Sameh Amr



Enrique Cabrero



Susannah Gordon



Vladimir E. Fortov

08:30-09:55 REGISTRATION AND REFRESHMENTS

Please arrive at UNESCO HQ as early as possible to collect materials and to pass through security.

10:00-12:00 SESSION 1

MODERATOR: Maciej Nalecz,

Director of the Division of Science Policy & Capacity Building, UNESCO

10:00-10:45 WELCOME AND INAUGURATION

The programme will begin with addresses from the United Nations Secretary General and UNESCO Director-General, official representatives of Member States and other supporting partners from the United Nations System.

Ban Ki Moon (Message)

Secretary-General of the United Nations

Irina Bokova (Message)

Director-General of UNESCO

Flavia Schlegel

Assistant Director-General for Natural Sciences, UNESCO
Representative of the Director-General of UNESCO

Jane Naana Opoku-Agyemang

Minister for Education, Ghana

Mohamed Sameh Amr

Chairperson of the Executive Board of UNESCO

Enrique Cabrero

Director-General of CONACYT, Mexico

Susannah Gordon

Permanent Delegate of New Zealand to UNESCO

Vladimir E. Fortov

President of the Russian Academy of Sciences





Ziad Aldrees



Patricio Hales



Rolf-Dieter Heuer



Ligia Noronha



John Dudley



Ahmed Zewail

Ahmed Zewail is the Linus Pauling Chair professor of chemistry and physics, and director of the Center for Physical Biology at Caltech, U.S. He is the sole recipient of the 1999 Nobel Prize for the development of the field of Femtochemistry. In 2009, President Barack Obama appointed him to the Council of Advisors on Science and Technology, and he became the first U.S. Science Envoy to the Middle East. He is also a member of the Scientific Advisory Board established by the United Nations Secretary-General. Among other developments, his efforts have resulted in the establishment of Zewail City of Science and Technology in Egypt, the heart of the Arab world.



Ahmed Salim

Ziad Aldrees

Ambassador and Permanent Delegate of the Kingdom of Saudi Arabia to UNESCO

Patricio Hales

Ambassador and Permanent Delegate of Chile to UNESCO

Rolf-Dieter Heuer

Director-General of CERN

Ligia Noronha

Director of the Division of Technology, Industry and Economics United Nations Environmental Programme (UNEP)

10:45-11:00 OVERVIEW

The International Year of Light has been in planning since 2009, and will see activities carried out worldwide coordinated by thousands of participants and reaching millions of people. This presentation will provide an overview of the major initiatives and themes of the year.

John Dudley

Chairman of the International Year of Light Steering Committee

11:00-11:45 NOBEL PLENARY LECTURE

LIGHT AND LIFE

Ahmed Zewail

Light was an integral part of the creation of the universe. For millions of years, light has defined the life of Homo sapiens. Through photosynthesis, light has given us food, energy, and the atmosphere. Using light we communicate information, see the big objects (planets and moons) far from us in the vault of the heavens, and see the small microscopic objects (cells and bacteria) our naked eye cannot resolve. Our life becomes invisible without light. Where does light get this transcending power from?

Curr. Sci. **84**, 29 (2003)

11:45 - 12:00 1001 INVENTIONS

INAUGURATION OF THE 1001 INVENTIONS AND THE WORLD OF IBN AL-HAYTHAM CAMPAIGN

1001 Inventions and the World of Ibn Al-Haytham is an international educational campaign celebrating the 10th century pioneer Ibn Al-Haytham. Ibn Al-Haytham's seminal *Kitab al-Manazir* (Book of Optics) was written around 1015, and its 1000th anniversary is listed in the United Nations resolution as a focal point of celebration of the International Year of Light. After a brief overview of the campaign from the podium, the audience will be invited to attend a display highlighting parts of the campaign in the adjacent Hall Ségur.

Ahmed Salim

Producer and Director, 1001 Inventions

12:00-14:00 LUNCH BREAK

There are many restaurants and brasseries within easy walking distance of UNESCO.

PROGRAMME

MONDAY 19 JANUARY

OVERVIEW DAY 1 AFTERNOON 14:00 – 20:00



MODERATORS

SESSION 2: FLAVIA SCHLEGEL

SESSION 3: ALFREDO PÉREZ DE ARMIÑÁN



Flavia Schlegel

14:00-16:10 SESSION 2

MODERATOR: Flavia Schlegel

Assistant Director-General for Natural Sciences, UNESCO



Steven Chu

Steven Chu is the William R. Kenan, Jr., Professor of Physics and Molecular & Cellular Physiology at Stanford University. His research spans atomic and polymer physics, biophysics, biology, biomedicine and batteries. He shared the 1997 Nobel Prize in Physics for the laser cooling and trapping of atoms. From January 2009 until April 2013, Dr. Chu was the 12th U.S. Secretary of Energy and the first scientist to hold a cabinet position since Ben Franklin.

14:00-14:40 NOBEL PLENARY LECTURE

ENERGY AND CLIMATE CHANGE: CHALLENGES AND OPPORTUNITIES

Steven Chu

Access to clean, affordable and reliable energy has been a cornerstone of the world's increasing prosperity and economic growth since the beginning of the industrial revolution. Our use of energy in the twenty-first century must also be sustainable. Solar and water-based energy generation, and engineering of microbes to produce biofuels are a few examples of the alternatives. This Perspective puts these opportunities into a larger context by relating them to a number of aspects in the transportation and electricity generation sectors. It also provides a snapshot of the current energy landscape and discusses several research and development opportunities and pathways that could lead to a prosperous, sustainable and secure energy future for the world.

Nature **488**, 294–303 (2012)

14:40-15:20 THEMATIC SESSION

THE INTERNATIONAL COMMUNITY OF LIGHT AND LIGHT-BASED TECHNOLOGY

The International Year of Light involves a worldwide community of participants from many different fields. Although coming from a diverse range of sectors, they are all dedicated to understanding the science of light and exploring its opportunities. This session will see different representatives from the International Year of Light community give their particular perspectives on the context, challenges and opportunities of 2015.



Eric Rondolat

Eric Rondolat

CEO of Lighting Sector, Royal Philips (Netherlands)

PROGRAMME

MONDAY 19 JANUARY



Jean-Luc Beylat



France A. Córdova



Francis Allotey



Zohra Ben Lakhdar



Ana María Cetto



Thierry Montmerle



Danielle Harper



Ann Webb



Gustavo Avilés



Harry Verhaar



Sze-leung Cheung



Barbara Horton

Jean-Luc Beylat

President of Alcatel-Lucent Bell Labs (France)

France A. Córdova

Director, National Science Foundation (USA)

Francis Allotey

African Physical Society & IUPAP Vice President (Ghana)

Zohra Ben Lakhdar

L'Oreal-UNESCO For Women in Science Laureate for Africa and the Arab States 2005 (Tunisia)

Ana María Cetto

Institute of Physics, National University of Mexico (UNAM) (Mexico)

Thierry Montmerle

International Astronomical Union (IAU) (France)

Danielle Harper

International Association of Physics Students (IAPS) (UK)

15:20-16:10 THEMATIC SESSION

LIGHTING THE FUTURE

Lighting provides safety and security, provides access to education, enhances architecture, promotes cultural heritage and improves quality of life. When poorly designed, however, lighting projects can lead to energy waste and light pollution. In this session, speakers will deliver short presentations covering a range of themes relating to future developments in innovative lighting solutions.

FACILITATOR

Ann Webb

President of the International Commission on Illumination (UK)

LIGHT AS HERITAGE: THE BINDING FORCE, UNIVERSAL PACIFIER

Gustavo Avilés

Lighteam architectural lighting design studio (Mexico)

ACCELERATING THE TRANSITION FROM LIGHT POVERTY TO SOCIO-ECONOMIC DEVELOPMENT

Harry Verhaar

President of the Global Off-Grid Lighting Association (GOGLA) (Netherlands)

LIGHT POLLUTION AND INTERNATIONAL ASTRONOMICAL UNION ACTIVITIES

Sze-leung Cheung

International Astronomical Union (IAU) International Outreach Coordinator (Japan / Hong Kong SAR, China)

A GLOBAL LIGHTING JOURNEY

Barbara Horton

President of the International Association of Lighting Designers (IALD) (USA)

16:10-16:40 COFFEE BREAK

PROGRAMME

MONDAY 19 JANUARY



Kishore RAO

16:40-18:00 SESSION 3

MODERATOR: Kishore RAO

Director of the UNESCO World Heritage Centre

16:40-17:30 THEMATIC SESSION

LIGHT FOR HUMANITY AND CULTURE

Light has tremendous cultural significance, it influences our perception of nature, and serves as a medium for passing knowledge and tradition from generation to generation. Light brings depth and character to performance and art, and is a potent symbol in literature and philosophy. This session will see a selection of presentations on these human and cultural aspects of light.

MAI I TE PŌKI TE AO MĀRAMA - FROM DARKNESS TO THE WORLD OF LIGHT Ngāti Rānana London Maori Club

Performance (New Zealand)

LIGHT, A RELIGIOUS SYMBOL BETWEEN IMMANENCE AND TRANSCENDENCE Gianfranco Cardinal Ravasi

President of the Pontifical Council for Culture (Vatican)

LIGHT, VISION AND ART: AN INDIVISIBLE RELATIONSHIP Alessandro Farini

CNR-National Institute of Optics and University of Florence (Italy)

IBN AL-HAYTHAM'S CONTRIBUTIONS TO OPTICS AND RENAISSANCE ART Charles Falco

University of Arizona (USA)

17:30-18:00 CLOSING REMARKS

RECITAL EINSTEIN'S LIGHT: IMPRESSIONS OF IMAGES AND MUSIC

Joshua Bell (violin) accompanied by **Marija Stroke** (piano)
Joshua Bell will present the World Premiere of three original compositions by Bruce Adolphe composed for *Einstein's Light*, a film production developed for the International Year of Light by Nickolas Barris and Imaginary Films. All three compositions have been inspired by the importance of light: (i) Light, Speed, Grace; (ii) Einstein's Sarabande: The Loneliness of Genius and the Guidance of Light; (iii) Innovation: From Mozart, War, to Flash of Scientific Insight.

18:00-20:00 COCKTAIL

A reception will take place in the foyer and exhibition area in the Salle des Pas Perdus.

LIGHT IS HERE - LIGHTING THE UNESCO BUILDING

At 18:30, all guests are invited to experience the exterior illumination of the UNESCO Fontenoy building which has been designed and implemented by Finnish light artist Kari Kola (Valoparta) from the Japanese Garden or from the Globe Garden just outside Hall Ségur. The installation will transform all three faces of the building to recreate the Aurora Borealis.



Gianfranco
Cardinal Ravasi



Alessandro Farini



Charles Falco



Joshua Bell



Marija Stroke

PROGRAMME TUESDAY 20 JANUARY

OVERVIEW DAY 2 MORNING 08:30 – 14:00



MODERATORS **SESSION 1: JOSEPH NIEMELA** **SESSION 2: ANA MARIA CETTO**



Joseph Niemela



William D. Phillips

William D. Phillips is a Fellow of the Joint Quantum Institute, a cooperative endeavor of the National Institute of Standards and Technology (NIST) and the University of Maryland. At NIST he leads the Laser Cooling and Trapping Group in the Quantum Measurement Division; at the University of Maryland he is a Distinguished University Professor of Physics; and at JQI he is the co-director of an NSF-funded Physics Frontier Center studying quantum phenomena across the subfields of physics. In 1997, Dr. Phillips shared the Nobel Prize in Physics “for development of methods to cool and trap atoms with laser light”.

08:30–08:55 REGISTRATION

Please arrive at UNESCO HQ as early as possible to collect materials and to pass through security.

09:00–11:00 SESSION 1

MODERATOR: Joseph Niemela

Director of the Office of External Activities,
Abdus Salam International Centre for Theoretical Physics

09:00–09:45 NOBEL PLENARY LECTURE

EINSTEIN, TIME AND LIGHT

William D. Phillips

At the beginning of the 20th century, Einstein changed the way we think about Time and Light. Now in the 21st century, Einstein’s thinking is shaping one of the key scientific and technological wonders of contemporary life: atomic clocks, the best timekeepers ever made. Such super-accurate clocks are essential to industry, commerce and science; they are the heart of the Global Positioning System (GPS), which guides cars, airplanes and hikers to their destinations. Today, atomic clocks are still being improved, using atoms cooled by the pressure of light to incredibly low temperatures. Atomic gases now reach temperatures less than a billionth of a degree above Absolute Zero. Super-cold atoms are at the heart of Primary Clocks accurate to better than a second in 300 million years. Such atoms also use, and allow tests of, some of Einstein’s strangest predictions. This lively, multimedia presentation, will include experimental demonstrations and down-to-earth explanations of some of today’s most exciting science.



Andrew Forbes



Yanne Kouomou Chembo



Thanh-Nga Trinh Tran



Sudhanshu Sarronwala



Ana Maria Cetto



Serge Haroche

Serge Haroche is a French physicist who was awarded the 2012 Nobel Prize for Physics jointly with David J. Wineland for “ground-breaking experimental methods that enable measuring and manipulation of individual quantum systems”, a study of the particle of light, the photon. Since 2001, Haroche is a Professor at the Collège de France and holds the Chair of Quantum Physics.

9:45-10:30 THEMATIC SESSION

LIGHT ON DEVELOPMENT

How are education and research in optics carried out within Africa and what is their impact? How are lasers changing the lives of vulnerable communities in Vietnam? How can simple actions by individuals take on truly global significance? This session will see speakers discuss these important issues through a series of moderated presentations.

FACILITATOR

Andrew Forbes

CSIR National Laser Centre (South Africa)

INTERNATIONAL YEAR OF LIGHT - AN AFRICAN PERSPECTIVE

Yanne Kouomou Chembo

ERC Starting Grant Laureate, CNRS (France) and African Physical Society (Cameroon)

FROM VIETNAM TO THE US AND BACK AGAIN: HELPING KIDS WITH DISFIGURING BIRTHMARKS IN VIETNAM, A HUMANITARIAN MEDICAL COLLABORATION

Thanh-Nga Trinh Tran

Vietnam Vascular Anomalies Center (Vietnam, USA), Harvard Medical School (Boston, USA)

EARTH HOUR: LIGHTS-OUT TO CHANGE CLIMATE CHANGE

Sudhanshu Sarronwala

Earth Hour, World Wide Fund for Nature (WWF, Singapore)

10:30-11:00 COFFEE BREAK

11:00-12:25 SESSION 2

MODERATOR: Ana Maria Cetto

Institute of Physics, National University of Mexico (UNAM) (Mexico)

11:00-11:40 NOBEL PLENARY LECTURE

LIGHT AND THE QUANTUM

Serge Haroche

The world is made up of atoms which emit, absorb and diffuse light. Light is the essential vehicle for the information which we receive about our environment. At the beginning of the last century, quantum theory uncovered the enigmatic laws obeyed by matter and radiation at a microscopic level, in a counter-intuitive world in which the notions of waves and particles are closely intertwined. Light is both a continuous stream and a collection of discrete photons. This enigmatic area of physics is based on the principle of superposition. A microscopic system can actually exist in several possible states simultaneously, suspended as it were between various classical realities. This lecture will explain how light reveals the quantum nature of physical reality.

PROGRAMME

TUESDAY 20 JANUARY



Gérard Mourou



Norio Kaifu



Caterina Biscari

11:40-12:25 THEMATIC SESSION

LIGHT AT THE LIMITS

Studying the properties of light has led to numerous breakthroughs in our understanding of the physical world. This session will see speakers address particular topics where pushing the limits of optical science promises to lead to new advances both in fundamental physics and multidisciplinary applications.

EXTREME LIGHT: A NEW AND UNIFYING PARADIGM

Gérard Mourou

The IZEST Consortium and the École Polytechnique (France)

BEYOND THE HORIZON OF THE UNIVERSE

Norio Kaifu

President of the International Astronomical Union (Japan)

FRONTIERS OF SYNCHROTRON SCIENCE

Caterina Biscari

ALBA Synchrotron and lightsources.org (Italy, Spain)

12:25-14:00 LUNCH BREAK

There are many restaurants and brasseries within easy walking distance of UNESCO.



PROGRAMME TUESDAY 20 JANUARY

OVERVIEW DAY 2 AFTERNOON 14:00 – 18:00

	14:00	15:00	16:00	17:00	18:00
Room 1	Nobel Plenary	Thematic Session	Coffee break	Thematic Session	Thematic Session
					Closing Remarks (end 18H)

MODERATORS **SESSION 3: OSMAN BENCHIKH & JOHN DUDLEY** **SESSION 4: MACIEJ NALECZ**



Osman Benchikh



John Dudley



Zhores Alferov

Zhores Alferov is the Russian Academy of Sciences (RAS) Vice-President, Chairman of Saint-Petersburg Scientific Centre of RAS, Rector of Saint-Petersburg Academic University-Nanotechnology Research and Education Centre of RAS. His research has contributed significantly to the creation of modern heterostructure physics and electronics. In the year 2000, Prof. Alferov was awarded (together with H. Kroemer) the Nobel Prize in Physics for basic work on information and communication technology particularly for developing semiconductor heterostructures used in high-speed communications and optoelectronics.

14:00-16:10 SESSION 3

MODERATORS:

Osman Benchikh

Chief of the Innovation and Capacity Building in Science and Engineering Section

John Dudley

Chairman of the International Year of Light Steering Committee

14:00-14:40 NOBEL PLENARY LECTURE

EFFICIENT LIGHT CONVERSION AND GENERATION Zhores Alferov

Heterostructures are formed by combining or joining at least two different materials. In this way, new structures can be designed with unique and superior electrical, optical, and mechanical properties. Heterostructures determined the creation and development of fiber-optic communication, mobile telephony and satellite communication and allowed for explosive development of semiconductor lasers and LEDs. All modern photonics, fast electronics, and to a large extent, solar energy and energy efficiency are based on application of heterostructures. This Lecture briefly reviews the history behind the physics and technology of heterostructures, especially low-dimensional heterostructures such as quantum wells, quantum wires, quantum dots and devices on their basis (lasers, LEDs, fast transistors, solar cells). Current trends in the development of physics, technology and application of heterostructures for efficient light generation and conversion are reviewed.

>>>>>>>

14:40-15:40 THEMATIC SESSION

THE FUTURE OF LIGHT

The science of light and its applications in the field of photonics provide many examples of how basic research has yielded both fundamental insights into nature as well as important applications in many different areas of science and technology. This session will see brief presentations on new research directions in both basic science and new technologies, as well as a review of the remarkable success story of light in being recognized by the highest award of the Nobel Prize.

SINGLE AND ENTANGLED PHOTONS:

AT THE HEART OF THE QUANTUM REVOLUTIONS

Alain Aspect

Institut d'Optique, Palaiseau
and UNESCO Niels Bohr Medal Laureate (France)

OPTICAL TECHNOLOGIES AT GOOGLE FOR A BRIGHTER FUTURE

Bernard Kress

Google [X] Labs (USA)

LIGHT AND HEALTH:

HOW BIOPHOTONICS CAN HELP IN THE FIGHT AGAINST DISEASE

Brian Wilson

University Health Network Biophotonics (Canada)

LIGHT AND NOBEL - THE FASCINATION OF SCIENCE

Sune Svanberg

Former Chair of the Nobel Committee for Physics (Sweden)



Alain Aspect



Bernard Kress



Brian Wilson



Sune Svanberg

15:40-16:10 COFFEE BREAK



PROGRAMME

TUESDAY 20 JANUARY



Maciej Nalecz

16:10-18:00 SESSION 4

MODERATOR: Maciej Nalecz,

Director of the Division of Science Policy & Capacity-Building, UNESCO

16:10-16:55 THEMATIC SESSION

LIGHT SOLUTIONS

Optical technologies have tremendous potential to provide practical solutions to many problems in developing countries. But at the same time, solutions need to be implemented in a way that supports local communities. In this session, speakers will describe some specific examples that are making huge differences in many different areas of the world.

LIGHTING UP THE WORLD, A LITER AT A TIME

Illac Diaz

Liter of Light and My Shelter Foundation (Philippines)

SEEING THE LIGHT AND EMPOWERING PEOPLE THROUGH THE ONEDOLLARGLASSES

Martin Aufmuth

The OneDollarGlasses Association (Germany)

LIGHTING UP AFRICA: THE SUNNYMONEY WAY

Linda Wamune

Sunny Money and Solar Aid (Kenya)

16:55-17:55 THEMATIC SESSION

SCIENCE POLICY

For the fruits of science to have lasting impact on society, it is essential that informed policy debate takes place on many crucial topics such: as North-South cooperation; promoting education in science and engineering; driving innovation and economic growth; encouraging civic engagement. This session will see speakers with a range of different backgrounds in both science and science policy discuss issues of how science can best engage with society and how policy solutions can address issues of sustainability and development.

José Mariano Gago

Former Minister of Science, Technology and Innovation (Portugal)

Naledi Pandor

Minister of Science and Technology (South Africa)

Ana María Cetto

Institute of Physics, National University of Mexico (UNAM) (Mexico)

Khalil Rouhana

Directorate General Communications Networks, Content and Technology, European Commission (France)

Maciej Nalecz

Director of the Division of Science Policy & Capacity-Building, UNESCO

17:55-18:00 CLOSING REMARKS



Illac Diaz



Martin Aufmuth



Linda Wamune



José Mariano Gago



Naledi Pandor



Ana María Cetto



Khalil Rouhana



Maciej Nalecz

SPEAKER BIOGRAPHIES

We would like to thank all the speakers in our thematic sessions for their commitment and participation in the International Year of Light Opening Ceremony. Brief biographies are listed below in alphabetical order.

FRANCIS ALLOTEY

Francis Allotey serves as President of the African Physical Society as well as Vice President at large of the International Union of Pure and Applied Physics (IUPAP). He is an internationally respected mathematical physicist holding a doctoral degree from Princeton University, U.S. He is known from the “Allotey Formalism” which arose from his work in Soft X-ray spectroscopy. Prof. Allotey has been a key leader in the promotion of physics both within Ghana and more widely across Africa. He serves on the International Year of Light 2015 Steering Committee.

ALAIN ASPECT

Alain Aspect is a professor at the Institut d’Optique Graduate School (Augustin Fresnel chair) and at Ecole Polytechnique, in Palaiseau, France, and an emeritus CNRS distinguished researcher at Institut d’Optique. Among his achievements, he made fundamental tests on the foundations of quantum mechanics, developed new methods for cooling atoms with lasers, and is currently working on quantum simulators with ultra-cold atoms. He is member of several Academies of Sciences and has received many awards, among them the CNRS Gold medal (2005), the Wolf Prize in Physics (2010), The Balzan prize on quantum information (2013), the UNESCO Niels Bohr Gold Medal (2013).

MARTIN AUFMUTH

Martin Aufmuth is the inventor of OneDollarGlasses and the founder and President of the OneDollarGlasses Association. His goal is to supply at least 150 million of financially disadvantaged people worldwide with affordable, high quality and locally produced eyeglasses. The OneDollarGlasses Association is currently active in the following countries: Burkina Faso, Benin, Rwanda, Ethiopia, Malawi, Brazil, Bolivia, Nicaragua and Bangladesh. In 2013, he was awarded the first prize of the empowering people Award of the Siemens Foundation.

GUSTAVO AVILÉS

Gustavo Avilés is General Director and Founder of Lightteam and member of the Board of Directors of the International Association of Lighting

Designers (IALD). He studied Architecture at the Iberoamericana University, Mexico. His work achieves a wide variety of applications: residential, corporate, historical buildings, lighting master plans, landscape, artistic installations and expositions, and large scale projections. Mr. Avilés is recipient of several prominent awards for his architectural works, including the Award for Environmental Design and Award of Merit for the MUAC Museum, Mexico.

ZOHRA BEN LAKHDAR

Zohra Ben Lakdhar-Akrout is a Professor Emeritus of the University Tunis el Manar, Tunisia. Prof. Ben Lakdhar Akrout holds a PhD from the Université Pierre et Marie Curie, France. Her research interest focused mainly in atomic and molecular physics. She is member of UNESCO expert group for Training of Trainers in Physics in developing countries and Fellow of the Islamic World Academy, the African Academy of Sciences and SPIE. In 2005, she received the L’Oreal UNESCO For Women in Science award and in 2011 she received the SPIE award for education.

JEAN-LUC BEYLAT

Jean-Luc Beylat is President of Alcatel-Lucent Bell Labs France, Chairman of the Business Cluster for Systematic Paris-Region, and President of the French Association of Competitive Clusters. He also serves as a member of the Executive Board of Photonics21. He first joined Alcatel in 1984 and has worked on semiconductor lasers, and he launched WDM terrestrial and submarine transmission research in the 1990’s before taking leadership positions within the optical business unit. He holds a doctorate in physics from The University of Pierre Marie Curie (France). He is a member of the Administration Council of INRIA, of the Etablissement Public Paris-Saclay, of IRT SystemX and ITEA. He is also a member of the executive committee of KIC ICT labs of the European Institute of Innovation and technology and was selected by the European Commission to take part in CONNECT Advisory Forum (CAF).

CATERINA BISCARI

Caterina Biscari is Director of Alba-CELLS, the 3rd Generation Synchrotron Radiation Facility located at Barcelona, Spain. She holds a Degree in Physics from the Universidad Complutense de Madrid and from the Università degli Studi of Naples. She has worked at CERN from 1982 to 1985, then at the Laboratori Nazionali di Frascati of INFN from 1985

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to 2012, on design, construction and operation of accelerators, participating with key contributions to different projects as DAFNE, CTF3, CNAO. She is a Fellow of the European Physical Society.

ANA MARÍA CETTO

Ana María Cetto is Research Professor at the Institute of Physics at the Faculty of Sciences and Director of the Museum on Light, National University of Mexico (UNAM). She holds degrees in Biophysics from Harvard University and Physics from the UNAM. Prof. Cetto has contributed substantially to establish quantization as an emerging phenomenon. She serves on the International Year of Light 2015 Steering Committee and the World Future Council, and is also founding president of Latindex, the open-access system for Ibero-American scholarly journals. Institute of Physics, National University of Mexico (UNAM). From 2003-2010 she served as Deputy Director General of the International Atomic Energy Agency (Nobel Peace Prize 2005), where she headed the Department of Technical Cooperation, and was Secretary-General of the International Council for Science (ICSU) from 2002-2008.

YANNE KOUOMOU CHEMBO

Yanne K. Chembo obtained a Ph.D. degree in physics from the University of Yaounde I (Cameroon) and a Ph.D. degree in laser physics from the Institute for Cross-Disciplinary Physics and Complex Systems (Spain). He is currently a CNRS researcher at the FEMTO-ST Institute, France, where he leads the microwave photonics group. He is an awardee of the European Research Council and of the NASA Inventions and Contributions Board, as well as a Senior Member of IEEE. He represented the African Physical Society as a member of the delegation that presented the International Year of Light proposal at an information meeting at UN Headquarters in New York in 2013.

SZE-LEUNG CHEUNG

Sze-leung Cheung is the International Outreach Coordinator of the International Astronomical Union (IAU) and coordinator for International Year of Light 2015 activities with respect to astronomy and light pollution. His background and expertise lies in organizing and coordinating large scale astronomical activities, in particular on public education on light pollution. He was one of the active task force members of the Dark Skies Awareness Cornerstone of the IAU International Year of Astronomy 2009 campaign based in Hong Kong.

FRANCE A. CÓRDOVA

France A. Córdoba is the director of the National Science Foundation, U.S., and president emerita of Purdue University. She holds a doctorate in physics from the California Institute of Technology, U.S. Dr. Córdoba's scientific contributions have been in the areas of observational and experimental astrophysics, multi-spectral research on x-ray and gamma ray sources and space-borne instrumentation. She is a recipient of NASA's highest honor, the Distinguished Service Medal, and was recognized as a Kilby Laureate in 2000.

ILLAC DIAZ

Illac Diaz is the executive director of MyShelter Foundation, a non-profit organization which has improved the lives of many Filipinos through the creation of sustainable solutions for using recycled materials for the building of clinics and classrooms in rural areas. The Liter of Light is a two-step program grassroots energy program using plastic bottle, water and bleach through rooftops as daylight solution, which are upgraded with an inserted locally built circuit for LED bulbs, battery and small solar panels for the evening lighting. Mr. Diaz was recognized by the World Economic forum as one of The Young Global Leaders for 2008

JOHN DUDLEY

John Dudley is Chair of the International Year of Light Steering Committee and serves as President of the European Physical Society until April 2015. John was educated in New Zealand but holds dual nationality with France and has been at the l'Université de Franche-Comté-CNRS Institut FEMTO-ST in France since 2000. His research interests cover broad themes in optical science, and he is currently co-investigator on an ERC Advanced Grant. He has received recognition as Fellow of the European Optical Society, the IEEE and the OSA, and has also received the SPIE President's Award, the Prize of the iXCore Research Foundation and the French CNRS Medaille d'Argent.

CHARLES FALCO

Charles Falco has joint appointments in Optical Sciences and Physics at the University of Arizona where he holds the UA Chair of Condensed Matter Physics. Prof. Falco is a Fellow of the American Physical Society, the Institute of Electrical and Electronics Engineers (IEEE), the Optical Society of America, and the Society of Photo-optical Instrumentation Engineers (SPIE). He has published extensively and holds seven

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U.S. patents. In addition to his scientific research, he and the world-renowned artist David Hockney found artists of such repute as van Eyck, Bellini and Caravaggio used optical projections in creating portions of their work. Pursuing even earlier documentation of the use of optics resulted in new discoveries that have revealed Ibn al-Haytham's contributions to broad areas of European culture.

ALESSANDRO FARINI

Alessandro Farini is the head researcher of the Visual Ergonomy Lab at the CNR-National Institute of Optics in Florence, Italy. He is a physicist graduated at the University of Florence, where he also received PhD in Optics. Alessandro Farini is also Contract Professor at the University of Florence, degree in Optics and Optometry: he is teaching Photophysics of vision and Psychophysics. Prof. Farini's research work is addressed to the study of lighting and ophthalmic optics.

ANDREW FORBES

Andrew Forbes is Chief Researcher at the CSIR National Laser Centre, South Africa, and is a member of the Photonics Initiative of South Africa's Steering Committee. He holds a PhD from the University of Natal, South Africa. Prof. Forbes chairs the SPIE international conference on Laser Beam Shaping and the OSA's Holography and Diffractive Optics group. Prof. Forbes also holds honorary professorships at several local universities, is a member of the Academy of Science of South Africa and a Fellow of SPIE.

JOSÉ MARIANO GAGO

José Mariano Gago was trained as an electrical engineer (IST) and as an experimental high energy physicist at the École Polytechnique in Paris. He also worked as an experimental high energy physicist for several decades at CERN, the European Particle Physics Laboratory in Geneva as well as heading Portugal's Laboratory for Particle Physics, LIP. Prof. Gago was Portugal's Science and Technology Minister (1995-2002). He launched the Ciencia Viva movement to promote Science & Technology culture and the importance of science and technology in society.

DANIELLE HARPER

Danielle Harper is an undergraduate Master's degree student at the University of St Andrews, UK. She has served on the executive committee of the International Association of Physics Students (IAPS) for the past two years with her current role including the coordination of the International Year

of Light activities. Her current research is in the field of biophotonics, in particular using the technique known as Optical Coherence Tomography.

BARBARA HORTON

Barbara Horton is the President of the International Association of Lighting Designers (IALD) and a Fellow of the organization. She is also President and CEO of Horton Lees Brogden Lighting Design, a women owned architectural lighting design firm. With over 30 years of experience, some of her notable projects include the World War II Memorial in Washington DC, Stanford Law School in Palo Alto, CA and W Hotel in Boston, MA.

NORIO KAIFU

Norio Kaifu is the President of the International Astronomical Union (IAU). He is a pioneer of mm-wave observations of interstellar molecules and discoverer of many new interstellar organic molecules in dark clouds. Prof. Kaifu led construction of the Nobeyama 45-m millimeter-wave Telescope (Japan) and the 8.2-m aperture Subaru Telescope (USA). He is winner of Japan Academy Award (1997) and Nishina Science Award (1987). Since 2005, he is serving for the Science Council of Japan.

BERNARD KRESS

Bernard Kress has made significant scientific contributions as a researcher, professor, consultant, advisor, instructor, and author in the field of micro- and nano-optics, for research, industry and consumer electronics. He has been involved in half a dozen start-ups in the Silicon Valley, on optical data storage, optical telecom, optical sensors, novel displays and digital imaging systems. Bernard holds numerous patents related to optical systems and technologies, has published extensively. He is an SPIE Fellow (2013). He has joined Google [X] Labs in 2011 in Mountain View, California, working on various projects involving optics. He is now Principal Optical Architect at Google [X].

THIERRY MONTMERLE

Thierry Montmerle is the General Secretary of the International Astronomical Union (IAU). He spent most of his scientific career as a high-energy astrophysicist at the Saclay Center for Nuclear Studies near Paris, France. His main field of research is star and planet formation. Within the IAU, Dr. Montmerle has been actively involved in the interactions between astronomy and the public, in particular on Astronomy and World Heritage and the International Year of Light.

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GÉRARD MOUROU

Gérard Mourou is Professor Haut College at the Ecole Polytechnique and also the Director of the International Zettawatt Exawatt Science and Technology (IZEST) platform. He is a pioneer in the ultrafast laser field and considered the father of the Extreme Light Field. Prof. Mourou is the co-inventor of the technique of Chirped Pulse Amplification (CPA). He has received numerous honors including the C.H. Townes award from the OSA. He is a Chevalier de la Legion d' Honneur.

MACIEJ NALECZ

Maciej Nalecz is a biochemist with over 200 scientific papers. An elected Member of the Polish Academy of Sciences and Letters (1998) and European Academy of Arts, Sciences and Humanities (2003), he is former Director of the Institute of Experimental Biology of the Polish Academy of Sciences (1990–2001) and former Chair of the Fellowships Committee for the Federation of European Biochemical Societies. He proposed and coordinated the creation of the International Institute of Molecular and Cell Biology (Warsaw), under the auspices of UNESCO (1995). He has been the Director of UNESCO's Division for Basic and Engineering Sciences since 2001.

JOSEPH J. NIEMELA

Joseph J. Niemela is a Senior Research Scientist and member of the permanent scientific staff of the Abdus Salam International Centre for Theoretical Physics (ICTP) in Trieste, Italy, a Category I UNESCO Institute. In addition to heading its Applied Physics group, he also directs its Office of External Activities and is the Global Coordinator for the Secretariat of the International Year of Light and Light-based Technologies 2015, hosted at ICTP.

NALEDI PANDOR

Naledi Pandor is South Africa's Minister of Science and Technology. A life of exile from 1961 until 1984 resulted in an international flavour to her education. She studied in Botswana and Swaziland, England and the United States before becoming a MP in 1994. Since then, she has amassed impressive experience in positions of public office. Her experience in education policy planning made her a welcome appointment as South Africa's Minister of Education from 2004–2009. She was appointed Minister of Science and Technology in May 2009, and Minister of Home Affairs in October 2012.

She was again appointed as Minister of Science and Technology in May 2014 following the 5th democratic elections in South Africa.

KISHORE RAO

Kishore Rao (India) is the Director of UNESCO's World Heritage Centre. He has Master's Degrees in Forestry (from India), and in Natural Resources Policy and Planning (from Cornell University, USA) and has worked with the Government of India since 1976 on forestry, protected area, and wildlife conservation programmes in various capacities. He has also worked with IUCN - The International Union for Conservation of Nature, from July 1999 to January 2005 and was Head of its Ecosystems and Livelihoods Group for the Asia Region. He was also the Vice-Chair for IUCN's World Commission on Protected Areas (WCPA) for South Asia from 1994 to 1999 and a member of the IUCN's World Heritage Panel from 2002 to 2004.

GIANFRANCO CARDINAL RAVASI

Gianfranco Ravasi is a Cardinal of the Catholic Church and President of the Pontifical Council for Culture, and of the Pontifical Commission for Sacred Archaeology Vatican City. He is an expert on the Bible and biblical languages and was previously the Prefect of the Ambrosian Library of Milan. He taught Old Testament Exegesis at the Theological Faculty of Northern Italy. His vast output includes one hundred and fifty volumes, principally on biblical matters. Cardinal Ravasi collaborates with many newspapers.

ERIC RONDOLAT

Eric Rondolat is Executive Vice President, Chief Executive Officer of Lighting and member of the Executive Committee of Philips Lighting. Eric Rondolat holds an Engineering degree and a Master's degree in International Marketing. He began his career in Merlin Gerin in 1990, and from there he started a long-term international career within Schneider Electric in both mature as well as fast developing emerging markets.

KHALIL ROUHANA

Khalil Rouhana is the director for "Components & Systems" in DG CONNECT (Communications Networks, Content & Technology). The mission of the Directorate is to support research and innovation and ensure industrial and business development of smart, integrated and key-enabling ICT technologies,

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including micro and nano-electronics, photonics, robotics, embedded and complex systems and advanced computing. The Directorate is also DG CONNECT lead for Horizon 2020/LEIT, notably coordination of key enabling technologies (KET) in ICT.

AHMED SALIM

Ahmed Salim is the Producer and Director of 1001 Inventions, a UK-based educational organisation and leading science and cultural heritage brand showcasing the contributions of inspirational men and women of different faiths and cultures in the Muslim Civilisation that spread from Spain to China. Under his leadership, 1001 Inventions produces global educational programmes, interactive exhibitions, live shows, short films, books and educational resources that have engaged over 120 million people around the world.

SUDHANSHU SARRONWALA

Sudhanshu Sarronwala is the Executive Director, Marketing & Communications from the World Wide Fund for Nature (WWF International), Switzerland. With more than 25 years of experience, his role includes brand, media and digital communications efforts to build a strong WWF Network that can engage and influence stakeholders in the quest to build a world where humans live in harmony with nature. In addition, he also has management responsibility for Earth Hour Global and WWF-Singapore and is a member of both boards.

SUNE SVANBERG

Sune Svanberg is former Director of the Lund Laser Centre, Sweden. Prof. Svanberg has received around 20 international and national awards, including five gold medals and four honorary doctor degrees. He is Fellow of four learned professional societies and member of six scientific academies. He served 10 years on the Nobel Committee for Physics, two years as its chairman. For 20 years he has worked with scientists in developing countries also helping organize several hands-on workshops on applied spectroscopy.

THANH-NGA TRINH TRAN

Thanh-Nga Trinh Tran, MD PhD is a cofounder of the Vietnam Vascular Anomalies Center, a non-profit humanitarian organization dedicated to the care of underserved children with vascular anomalies, pigmented birthmarks, scars and wounds. She is a practicing dermatologist, researcher, and instructor at Harvard Medical School. She is bringing

to Vietnam modern methods including laser and light technologies for treating these disfiguring conditions and has helped improve both education and patient outcomes for many children in her native country.

HARRY VERHAAR

Harry Verhaar is the President of the Global Off-Grid Lighting Association and chairman of the European Alliance to Save Energy. He has over 20 years of experience in the lighting industry, and is Head of Global Public & Government Affairs for Philips Lighting. Mr. Verhaar is responsible for Philips' relationship management with the UN and the World Bank. He is a recipient of the 2011 UN Leader of Change Award and has received the Carbon War Room's Gigaton award on behalf of Philips.

LINDA WAMUNE

Linda Wamune is the Country Director of SunnyMoney Kenya. She holds a bachelor's degree in Civil Engineering and an MBA from Kenyan Universities. Mrs. Wamune represented SolarAid at the UN Climate Summit in New York in September 2014. She is very passionate about making a real difference in people's lives and says that it is a privilege to use her skills and experience in renewable energy to achieve this in Africa.

ANN WEBB

Ann Webb is the President of the International Commission for Illumination (CIE) and Professor in the Centre for Atmospheric Sciences at the University of Manchester, UK. She has a PhD in Environmental Physics from Nottingham University. Her research work remains at the interface between disciplines, with radiation and (sun)light as a central theme. Prof. Webb has strong collaborations with the Medical School and photobiologists, as well as modelling and experimental work in the atmospheric sciences.

BRIAN WILSON

Brian Wilson is Professor of Medical Biophysics at University of Toronto/University Health Network, Canada, where he directs a multidisciplinary program in the development and application of biophotonics for medical analytics, diagnostics and therapeutics. He is the recipient of multiple awards, including the Michael S. Feld Biophotonics Award from the Optical Society of America and the Britton Chance Award in Biomedical Optics from the International Society for Optics and Photonics SPIE.

PERFORMERS

MAI I TE PŌ KI TE AO MĀRAMA

FROM DARKNESS TO THE WORLD OF LIGHT

In the beginning of the Māori world, the Māori Gods lived in Te Pō (The Darkness) within the embrace of their parents Ranginui (Sky Father) and Papa-tū-ā-nuku (Earth Mother). One day they became restless and together they decided to separate their parents. One by one they attempted to separate Ranginui and Papa-tū-ā-nuku but it was Tāne-mahuta (God of the Forest) who succeeded. He did

so by pushing his mother down with hands and forcing his father upward with his feet. It was through the separation that Te Ao Mārama emerged, The World of Light. And so began the world we live in today.

NGĀTI RĀNANA

Ngāti Rānana have been performing in and around the UK and Europe for over 50 years, sharing Māori culture and their love for song and haka to a vast range of people, from appearing on BBC's prestigious "Sports Personality of the Year" to performing at private weddings. The three guiding principles of Ngāti Rānana are whanaungatanga (togetherness), manaakitanga (looking after one another/hospitality) and kōtahitanga (unity).

EINSTEIN'S LIGHT:

IMPRESSIONS OF IMAGES AND MUSIC

Einstein's Light is a documentary film created by award-winning international filmmaker, Nickolas Barris. It explores how scientific imagination and innovation advance knowledge frontiers with Albert Einstein as a model. The film's structure examines Einstein's discoveries as well as where imagination and innovation are occurring in the present time highlighting modern organizations on the front edge of discovery. It illuminates Einstein's quest to realize his General Theory of Relativity from his miracle year of 1905 to its finalization amidst the horrors of World War I as he used the properties of light to guide his creative path. The symbiotic relationship between music and science is a major theme as Einstein is the greatest example of its efficacy. Nickolas Barris commissioned live original songs to reflect the power of music as a catalyst for scientific creativity. Grammy award winning violinist, Joshua Bell, will perform three of these songs from the film for their world premiere at the International Year of Light opening ceremony.

Film written, directed, and produced by Nickolas Barris

Original music by Bruce Adolphe

Joshua Bell, violin

Marija Stroke, piano

BRUCE ADOLPHE

Bruce Adolphe is a composer whose music is performed worldwide by such musicians as Yo-Yo Ma, Itzhak Perlman, Fabio Luisi, the Brentano Quartet, and over sixty orchestras. Adolphe is also the author of three books on music, the resident lecturer of The Chamber Music Society of Lincoln Center, and appears weekly on public radio's Performance Today throughout the United States.

NICKOLAS BARRIS, IMAGINARY FILMS

Imaginary Films is the feature film and television company founded by Hollywood writer/producer Nickolas Barris. Nickolas Barris has developed and/or written over 40 feature films and over 100 hours of Prime-Time U.S. Network Television. It is estimated that over 100,000,000 people have watched film and television projects developed by Nickolas Barris. Nickolas Barris is a member of the Writers Guild of America and the Television Academy of Arts and Sciences.

JOSHUA BELL

Joshua Bell is one of the preeminent classical musicians in the world today. A Grammy award winning violinist with more than 40 CDs to his credit including the Oscar-winning soundtrack for The Red Violin. Now in his third season as Music Director of the Academy of St. Martin in the Fields, Bell is the first person to hold this title since Sir Neville Marriner formed the orchestra in 1958. Bell's career spans over 30 years as a soloist, chamber musician, recording artist and conductor while being an outspoken advocate for classical music and keeping music education in schools.

MARIJA STROKE

Marija Stroke has performed worldwide as soloist, with such ensembles as the Brentano Quartet, and as member of the Apollo Trio at venues including Mostly Mozart Festival, City of London Festival, Chamber Music Society of Lincoln Center, Kennedy Center, Carnegie Hall, and Wigmore Hall. Stroke has recorded music of Adolphe, Grieg, Rodrigo, Fauré, and Dvorak.

1001 INVENTIONS AND THE WORLD OF IBN AL-HAYTHAM



1001 INVENTIONS AND THE WORLD OF IBN AL-HAYTHAM

Hall Ségur

'1001 Inventions and the World of Ibn Al-Haytham' is a new global campaign produced by 1001 Inventions and the King Abdulaziz Center for World Culture in partnership with UNESCO and the International Year of Light 2015.

Born around a thousand years ago in what is present day Iraq, Al-Hasan Ibn Al-Haytham (known in the West by the Latinised form of his first name, first as "Alhacen" and later as "Alhazen") was a pioneering scientific thinker who made important contributions to the understanding of vision, optics and light. His methodology of investigation, in particular using experiment to verify theory, shows certain similarities to what later on became to be known as the modern scientific method. Through his *Book of Optics* (Kitab al-Manazir) and its Latin translation (De Aspectibus), his ideas influenced European scholars including those of the European Renaissance. Today, many consider him as a pivotal figure in the history of optics and the "father of modern optics".

'1001 Inventions and the World of Ibn Al-Haytham' will be launched at UNESCO's Hall Ségur with a showcase displaying parts of the global Ibn Al-Haytham campaign. The year-long initiative, involves a series of international events and engaging science experiences including interactive exhibits, live shows, workshops, digital content, teaching resources and a short feature film starring legendary actor Omar Sharif. The campaign will then roll out in countries around the world through engaging with museums,

science festivals, educational institutions, digital and social media platforms.

The showcase in Hall Ségur includes highlights from the golden age of science in Muslim Civilisation and a display about Ibn Al-Haytham featuring a giant fully functioning camera obscura built in his honour.

'1001 Inventions and the World of Ibn Al-Haytham' inter-links IYL 2015 themes and initiatives on science, arts, culture and technology aiming to incite inquisitiveness and curiosity and to encourage young people to study Science, Technology, Engineering, Math and Medicine (STEMM). In addition to UNESCO, a growing number of partners are already engaging including FSTC (UK), the King Abdulaziz Center for World Culture (KSA) and the Library of Alexandria (Egypt).

1001 INVENTIONS

1001 Inventions is an award-winning UK based organisation that creates global educational campaigns and transmedia productions that have successfully engaged with over 120 million people around the world.

ART EXHIBITS AND INSTALLATIONS

HARNESSING LIGHT AND LIGHT-BASED TECHNOLOGIES FOR AFRICA'S DEVELOPMENT

DISPLAY OF CULTURE AND SCIENCE Permanent Delegation of Ghana to UNESCO and Ghana National Commission for UNESCO

Inspired by 'Owia kokroko' - the mighty sun that embodies Ghana's concept of light as the source of all life, Ghana's exhibition showcases the Ghanaian/African cultural and natural heritage associated with and related to the phenomena of light, as well as achievements and advances made in light related sciences and light-based technologies by Ghanaian / Africans and significant research, innovations and futuristic developments in light science taking place in Ghana.

LIGHT: BEYOND THE BULB

IMAGE EXHIBIT SPIE, Chandra X-ray Center/ Smithsonian Astrophysical Observatory Editor: Kimberly Arcand/Chandra.

LIGHT: Beyond the Bulb is an open-source international exhibition program that showcases the incredible variety of light-based science being researched today across the electromagnetic spectrum, across scientific disciplines, and across technological platforms. Together with SPIE, the Chandra X-ray Center/Smithsonian Astrophysical Observatory are leading Light: Beyond the Bulb for the International Year of Light 2015. Light: Beyond the Bulb is also a cornerstone project for the International Astronomical Union during 2015. A selection of these images will be displayed outside Room 1 during the Opening Ceremony.



LIGHT IS HERE

EXTERIOR LIGHT INSTALLATION

Artist: **Kari Kola** Execution: **Valoparta**

Light is Here deals with light in multiple ways, in a stylistically abstract form. The 360-degrees installation lights up the exterior of the UNESCO Fontenoy building, recreating some of the most fascinating light natural phenomena of the planet: the Northern lights and the sunrise. The building is bathed in blue and green, contrasting with the warm colours of the dawn.

Kari Kola

Kari Kola is a lighting designer and a light artist; He has designed and executed lighting for many operas, musicals, plays, concerts, landscapes, festivals and dance pieces. Also, he has carried out many sizable light installations, designed multi-channel soundscapes and taught in different fields of lighting. His specialty is mixing different art forms when creating a show or an installation. Large outdoor installations are his greatest passion and his main expertise.



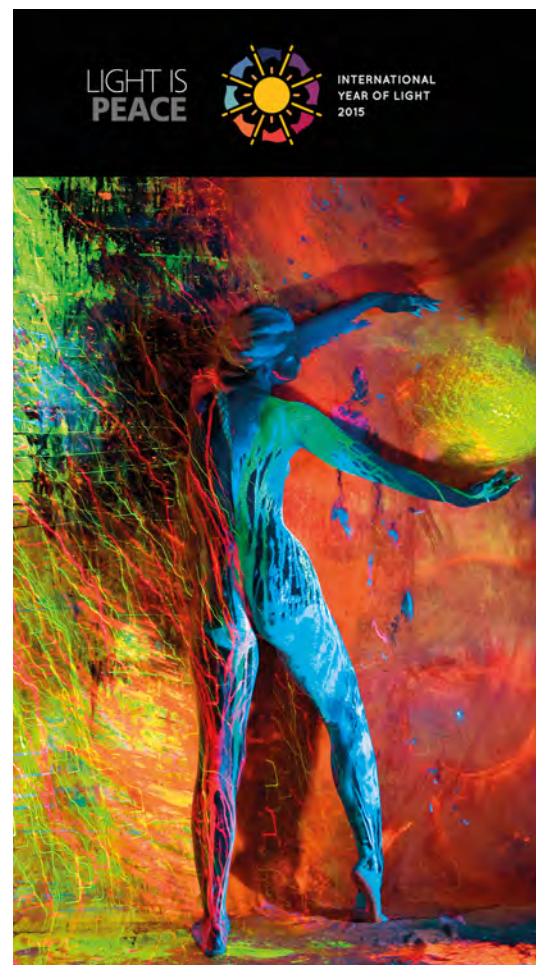
ART EXHIBITS AND INSTALLATIONS

LIGHT PAINTED WORLD

100 LIGHT PAINTINGS,
100 ARTISTS, LCD SCREENS

The Light Painting World Alliance (LPWA)

Light painting is the artistic genre of long exposure photography. Artists work in darkness and use artificial light sources to create unique forms and shapes and illumination of the photographic composition; often achieving a surreal and ephemeral effects. A common reaction by the general public is that the images have been “Photoshopped,” but all works shown in the LPWA exhibits come straight from the camera without post-processing of any kind. The LPWA exhibit is possible thanks to support from Roulot, Drouot et Associés.



The exhibition features in particular the work by the Winners of the Light Painted World International Year of Light Competition: Erasmo Daaz & Ricardo Tenti, Spain and Italy (Light is Peace); Diliz, France (Light is Motion); Julie Larocque & Martin Shank, Canada (Light is Dream); HoryMa, Russia (Light is Life); Joerg Miedza, Germany (Light is Joy); Janne Parviainen, Finland (Light is All).

The Light Painting World Alliance (LPWA)

Founded in 2011 by Sergey Churkin, the LPWA is an international association of light painting photographers dedicated to the promotion and education of the public to the wonders of light painting as an art form. For our artist members, light is what connects us to collaborate and portray our unique vision of the world in which we live. We also believe that light, when artistically applied to our works, can convey a message of harmony with our environment and a sense of wonder and global connection to humanity.

ART EXHIBITS AND INSTALLATIONS

LIGHT PROJECTION!

WALL PROJECTION OF SOCIAL MEDIA Hochschule Offenburg, University of Applied Sciences

During the Opening Ceremony, an interactive world map projection will be able to be seen on the wall space outside Room 1, showing the online community celebrating the Launch of the Year! The projection is based on posts from Twitter, Facebook web page and the Hochschule Offenburg webpage. You can participate in the Map too - all it takes is that you write #IYL2015 in all your International Year of Light related comments on Twitter!

Hochschule Offenburg, University of Applied Sciences

The University of Applied Sciences Offenburg is a German university owned by the state of Baden-Wuerttemberg. It is one of the most important educational institutions in the southern Upper Rhine area with over 4,000 students. The Light Projection! display is coordinated by Professor Dan Curticapean with his students.



LIGHT YEARS

FILM, 10 MINUTES

Artists: **Wesley Shrum** and **Gregory Scott**
Original Soundtrack: **Brett Dietz**

Since the beginning of modern cinema, viewers and critics alike have been transfixed by light contrasted with darkness. This interplay of light and dark was typical of film noir, a metaphor of good and evil in plots that featured crime, detectives, and mystery. We celebrate this genre through a salute to Augustin-Jean Fresnel, the inventor of a lens for lighthouses that was later used for movie and theatre lighting. Light Years features serial murder and a star-studded group of suspects over a half-century of film. Whodunnit? Ultimately, we learn that the Fatal Fresnel Lens has incinerated five cameras that recorded their own demise.

Wesley Shrum

Wesley Shrum is Professor of Sociology at Louisiana State University, where he teaches the sociology of science and technology as well as sociological theory. He is Director of the Ethnografilm Festival, featuring the best of non-fiction filmmaking each April in Paris, France, at the Cine 13 Theatre and the Program Officer for the Society for Social Studies of Science.

Gregory Scott

Greg Scott is the director of the Social Science Research Center and an associate professor of sociology at DePaul University. He teaches courses on ethnographic documentary film production, visual sociology, and qualitative research methods. He is also the Editor-in-Chief of the Journal of Video Ethnography, the first-ever peer-reviewed journal of ethnographic films and videos.

RADIANCE ORB

INTERACTIVE LIGHT INSTALLATION

Artist: **Light at Play**

The Radiance Orb is part of an ongoing series of interactive light installations exploring the intersection of cutting-edge lighting technology and 3D geometry. For this project, Light at Play scaled down a geodesic dome concept they have been developing over the years and made a complete sphere - while also significantly increasing the LED resolution and responsiveness to ambient sound.

Light at Play

Light at Play was founded by Yona Appletree, who integrates a technical approach to design with artistic expression in his favorite medium, software, and Wayne Skipper, whose background spans the technology gamut, from hardware design to software architecture, is passionate about Art and Science - and enjoys building bridges between them. While Yona co-founded Light at Play in order to realize his vision of the Radiance Dome. Yona's passion is in the symbiosis of art and technology, Wayne wanted to explore the nexus of cutting-edge lighting technology and data visualization in 3D spaces.

PARTNERS AND SPONSORS

The International Year of Light would not be possible without our many sponsors and partners. We are extremely grateful for their support and commitment to the ideals of our mission during 2015. Please enjoy visiting their stands and displays to experience the diversity of the International Year of Light community.

FOUNDING PARTNERS

- AMERICAN INSTITUTE OF PHYSICS (AIP)
- AMERICAN PHYSICAL SOCIETY (APS)
- DEUTSCHE PHYSIKALISCHE GESELLSCHAFT (DPG)
- EUROPEAN PHYSICAL SOCIETY (EPS)
- INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS (ICTP)
- IEEE PHOTONICS SOCIETY
- INSTITUTE OF PHYSICS (IOP)
- LIGHT SCIENCE & APPLICATIONS (LSA)
- LIGHTSOURCES.ORG
- 1001 INVENTIONS
- THE OPTICAL SOCIETY OF AMERICA (OSA)
- THE INTERNATIONAL SOCIETY OF OPTICS AND PHOTONICS (SPIE)

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- CHINA INTERNATIONAL OPTOELECTRONIC EXPO (CIOE)
- INTERNATIONAL COMMISSION ON ILLUMINATION (CIE)

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- AMERICAN CHEMICAL SOCIETY (ACS)
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- CITY OF LIGHT JYVÄSKYLÄ
- CIRCLE OF LIGHT MOSCOW INTERNATIONAL FESTIVAL
- COMMISSARIAT À L'ÉNERGIE ATOMIQUE ET AUX ÉNERGIE ALTERNATIVES (CEA)
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THE YEAR OF LIGHT ONLINE!

Thank you for participating in the launch of the 2015 International Year of Light and Light-Based Technologies! But this is just the beginning of a year-long series of activities all over the world. On our website, www.light2015.org, you can learn more about the anniversaries and themes that are the focus of 2015, you can access our calendar of events and join in with any activities planned in your country! If you wish to organize your own events, you are very welcome to post the events on the website calendar. Let's make this International Year a great success together!

As expected with a year on light-based technology, the International Year of Light will make extensive use of Social Media Channels, such as **Facebook (IYLight2015)** and **Twitter (@IYL2015)**. Please follow us, and don't forget to use the **#IYL2015** hashtag for all social media posts to help us raise awareness of the importance of light and light-based technologies for the world.

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