



World Cultural Council 38th Award Ceremony
3rd November 2023 University of Helsinki

INVITATION



UNIVERSITY OF HELSINKI

INVITATION

The University of Helsinki and the World Cultural Council (WCC) are extremely pleased to invite you to the 38th World Cultural Council Award Ceremony which will be held at University of Helsinki on November 3rd 2023.

Date: Friday, 3rd November 2023

Time: 5:00pm

Place: Great Hall, Main Building, University of Helsinki,
entrance: Aleksanterinkatu 5.

RSVP: October 16, 2023 via this [link](#)

As part of the programme, the WCC, in cooperation with the University of Helsinki, organizes laureate lectures that create an opportunity for interaction between the community and the winners. These lectures will take place on Thursday, 2nd November, 2023 at Think Corner, University of Helsinki, entrance: Yliopistonkatu 4.

For further details on the programme please visit:

helsinki.fi/worldculturalcouncil2023



WELCOME

SARI LINDBLOM

RECTOR, UNIVERSITY OF HELSINKI

Let me warmly welcome all of you to the 38th World Cultural Council Award Ceremony at the University of Helsinki!

The World Cultural Council promotes culture, values and goodwill throughout the world. These are objectives that are familiar to universities. For centuries, we have unwaveringly continued to work for the benefit of society. We have at our disposal the power of research-based knowledge, which gives us a role in guiding the future. In an ever-changing world, universities hold a key role in evoking hope. We are a tremendous force able to make a difference in the world.

The University of Helsinki is Finland's largest and oldest academic institution and an innovative centre of science and thinking. For 383 years, we have contributed to the establishment of a fair and equal society. Today, our multidisciplinary academic community solves problems that affect us around the globe – with the power of knowledge, for the world.

The University of Helsinki is a community of research and learning based on courageous thought and dialogue. We generate understanding for the benefit of society through responsible and ethical research and teaching. Therefore, it is our honour to host the World Cultural Council Award Ceremony, which celebrates pioneers and role models in modern technology and human culture, as well as introduces promising young scholars.

The University of Helsinki hosted the award ceremony for the first time in 2003, and we are excited to have this unique opportunity again. I hope that we can make this an inspirational and uplifting experience in Helsinki again for you. We look forward to meeting you in November!



WELCOME

SIR FRASER STODDART PRESIDENT, WORLD CULTURAL COUNCIL

It is truly a great honour for the World Cultural Council to celebrate its 38th Award Ceremony at the University of Helsinki which is Finland's largest and oldest academic institution. Since 1640 the University, which has contributed to the establishment of a more just society, is considered today to be one of the most equitable in the world. Nowadays, it is renowned as an innovative centre of science and culture.

These values are fully aligned with the vision of the World Cultural Council, which seeks to contribute to a culture that inspires the peoples across the planet to join together towards the making of a better world, respecting differences between people, promoting progress and celebrating the achievements emanating from human creativity.

This year, **Professor Christoph Gerber**, Department of Physics and Swiss Nano Institute, University of Basel, Switzerland, has been selected as the winner of the **“ALBERT EINSTEIN” World Award of Science** and **Professor Larry V. Hedges**, Board of Trustees Professor of Statistics and Education and Social Policy; Professor of Psychology; Professor of Medical

Social Sciences, Northwestern University, USA, will be conferred the **“JOSÉ VASCONCELOS” World Award of Education**. Both winners are eminent pioneers in their respective fields and outstanding role models who have accomplished remarkable goals leading to advances in modern technology and human culture.

The event also includes the presentation of Special Recognitions to a number of young Finnish scholars whose careers I am eager to follow in the years that lie ahead.

On this very special occasion, we will commemorate the fact that 20 years ago, the Award Ceremony took place for the first time in Finland hosted by the University of Helsinki. Following the precepts of the World Cultural Council to remain attentive to the responsibility of science and culture in tomorrow's world, the 2023 celebrations will provide an excellent opportunity for disseminating the outstanding achievements of the laureates and celebrating the inspiration given by the awardees as role models, as well as encouraging members of the younger generations to join forces to overcome the challenges of our current times.

THE WORLD CULTURAL COUNCIL



The World Cultural Council (WCC) is an international organization, founded in 1982 in Mexico, whose goals are to promote cultural values, goodwill and fraternity among people.

One of the means by which it strives to accomplish its mission is by granting the **Albert Einstein World Award of Science**, the **José Vasconcelos World Award of Education** and the **Leonardo da Vinci World Award of Arts** to leading figures whose work has had a significantly positive impact on the cultural legacy of mankind. The members of the Council include several Nobel laureates.

Since its foundation, the dedicated work of our members has produced a long list of distinguished prize-winners, selected with an holistic appreciation of their merits. All prize-winners have

received accolades in the academic setting of the universities and institutions throughout the world which have hosted the award ceremonies.

WCC Award Ceremonies have proved to be an excellent opportunity for bringing together top-level scientists, educators and researchers from around the world, while showcasing the outstanding achievements of the awardees and inspiring a new generation.

The ceremonies are also a wonderful occasion for disseminating the remarkable achievements of the awardees and acknowledging the inspiration they provide in terms of academic excellence and positive impact on society.

THE AWARDS

Since 1984 the World Cultural Council has recognized individuals who have made exceptional achievements in science, education, and the arts, with the final objective of promoting tolerance, peace and fraternity. The WCC seeks to encourage the use of science, art and education to further the well-being of humanity.

The prizes are given to individuals or teams whose work has had a significant and positive impact on the cultural legacy of mankind. The high level of the jury, comprised of world-renowned scholars and eminent individuals in the above fields, enhances the prestige of the awards.

This year, the WCC and University of Helsinki, which is one of the most dynamic universities in the Nordic region, are enthusiastic about expanding their partnership by celebrating this Award Ceremony which is exactly twenty years after their first jointly hosted event. It offers the opportunity to cooperate in disseminating their many shared values including 1) excellence as a guiding principle in research, higher education and innovation, 2) inspiring future generations by recognizing extraordinary individuals and achievements, 3) embracing a vision of diversity and mutual respect towards a better world, and 4) promoting a strong vision of sustainable practices and respect to the environment.

This innovative university offers an ideal venue for recognizing the outstanding achievements of the WCC's laureates and celebrating the inspiration that they bring as role models for future generations.

The annual **“Albert Einstein” World Award of Science** recognizes individuals whose scientific or technological achievements have brought progress and benefit to mankind. The laureate is selected by the Council's Interdisciplinary Committee, which comprises of highly accomplished scientists from across the globe.

The **“José Vasconcelos” World Award of Education** is granted to a renowned educator, an authority in the field of teaching, or someone who has brought about visionary development in education policy. Through his/her work, the individual or team should have had a significantly positive influence on the quality and reach of teaching and learning in society. The prize is awarded every second year.



PREVIOUS AWARD CEREMONIES

Year	City	Country/Region	Institution
2022	Coimbra	Portugal	University of Coimbra
2019	Tsukuba	Japan	University of Tsukuba
2018	Hong Kong	China	City University of Hong Kong
2017	Leiden	The Netherlands	Leiden University
2016	Riga	Latvia	Riga Technical University
2015	Dundee	UK	University of Dundee
2014	Otaniemi	Finland	Aalto University
2013	Singapore	Singapore	Nanyang Technological University
2012	Aarhus	Denmark	Aarhus University
2011	Tartu	Estonia	Tartu University
2010	Toluca	Mexico	Universidad Autónoma del Estado de México
2009	Liège	Belgium	University of Liège
2008	Princeton	USA	Princeton University
2007	Monterrey	Mexico	Universidad Autónoma de Nuevo León
2006	Mexico City	Mexico	Instituto Politécnico Nacional
2005	Saltillo	Mexico	Universidad Autónoma Agraria Antonio Narro
2004	Liège	Belgium	University of Liège
2003	Helsinki	Finland	University of Helsinki, Finnish Society of Sciences and Letters, and The National Archives of Finland

Year	City	Country/Region	Institution
2002	Dublin	Ireland	University of Dublin
2001	Utrecht	The Netherlands	Utrecht University
2000	Johannesburg	South Africa	University of the Witwatersrand
1999	Trondheim	Norway	Norwegian University of Science and Technology
1998	Wellington	New Zealand	Victoria University of Wellington
1997	Bangkok	Thailand	Chulalongkorn University
1996	Oxford	UK	University of Oxford
1995	Mexico City	Mexico	INBA, CONACULTA, Palacio de Bellas Artes
1994	Chambery	France	CODATA, ICSU, UNESCO
1993	Mexico City	Mexico	Presidencia de la República
1992	Ottawa	Canada	National Research Council
1991	Canberra	Australia	Australian National University
1990	Zurich	Switzerland	Eidgenössische Technische Hochschule
1989	Cambridge	USA	Massachusetts Institute of Technology
1988	Mexico City	Mexico	Instituto Politécnico Nacional
1987	Heidelberg	Germany	Universität Heidelberg
1986	Guadalajara	Mexico	Universidad de Guadalajara
1985	Stockholm	Sweden	Royal Institute of Technology
1984	Monterrey	Mexico	World Cultural Council



“ALBERT EINSTEIN”
WORLD AWARD OF SCIENCE 2023

PROFESSOR CHRISTOPH GERBER

Department of Physics and Swiss Nano Institute,
University of Basel, Switzerland

The prize is awarded in recognition of the
fundamental nature and broad impact of his
research on Nanoscale Science.

The jury recognizes, **Prof. Gerber's** co-invention of Atomic Force Microscopy (AFM) and his participation in the development of the Scanning Tunneling Microscope (STM), both of which have enabled breakthroughs in the physical sciences including material physics, chemistry, material sciences, and beyond. The jury also notes Prof. Gerber's continued development of (AFM) as a biochemical sensor, which has contributed significantly to the rapid progress of life sciences and has had a great and positive impact on the health and welfare of humankind.

Finally, yet importantly, the Jury also acknowledges Prof. Christoph Gerber's dedication to science which has extended more than 40 years and his commitment as a role model in scholarship that inspires future generations through the significant and continuous impact of his work.

Christoph Gerber was on the team, who developed the lens-less scanning tunneling microscope (STM), for which his colleagues Gerd Binnig and Heinrich Rohrer were awarded the Nobel Prize in 1986. Gerber has continued to develop the technology further and has added numerous new innovations. The emergence of Atomic Force Microscopy (AFM) 37 years ago in the then fledgling field of nanotechnology led to a paradigm shift in the understanding and perception of matter at a fundamental level. This is illustrated by the fact that an (AFM) has already been sent to the Martian surface and another was used onboard the European Space Agency Rosetta mission to a comet to investigate stardust on the nanoscale. It seems not even the sky is the limit for (AFM) technology.

Another achievement with a tremendous impact is nanosculpting. The term refers to adding, arranging, and removing atoms to produce desired phenomena

and functionality. The tip provides a versatile tool for accomplishing such control. Being able to manipulate conductors and insulators at the nanoscale has applications comparable to those of nanoscale 3D printing. Nanostructures created by force microscopy-based techniques include devices in nanomechanics, nanoelectronics, nanophotonics, nanomagnetism and quantum mechanics.

The advantages of (AFM) have become especially significant, this includes experimenting in fluidic environments, which opens the possibility of exploring biological systems. A single molecule, such as a DNA or a protein molecule, can be suspended between the tip and surface. Lifting the tip stretches and unfolds the molecule. The measured restoring force reveals the molecule's elastic properties and functionality. High speed (AFM) for the first time enables to visualize biological functions in real time including dynamics in the time domain of chemical reaction monitoring the cellular machinery at the nanoscale and millisecond resolution.

Complementary to imaging and control on a molecular level, Prof. Gerber and his team pioneered the development of biochemical sensors based on the in-situ detection of biological reactions by temperature and stress-sensitive cantilevers arrays. This opened new doors for medical applications in fast and early diagnostics on the genetic level with point mutation resolution. Major recent research achievements with this technology have contributed to the field of rapid medical diagnosis of conditions caused by multidrug-resistant (MDR) bacteria in treatment with antibiotics and their severe complications in sepsis. The technique has the potential to play a vital role in personalized diagnosis including capturing circulating tumor cells (CTCs) in the bloodstream in the field

of liquid biopsies. Tailoring treatments to genetic makeup are part of the vision for precision medicine where all care is custom-fit to an individual DNA and genetic drug matching, which drugs work best for patients, what doses works best is part of Pharmacogenomics.

In addition, the high flexibility of (AFM) to image, probe and manipulate materials with unprecedented resolution and the ability to be combined with other technologies made it the most powerful and versatile toolkit in nanoscience and nanotechnology of today.

Developments of (AFM) technology have been on the hands of a large number of scientists across the globe, however, experts recognize that Prof. Gerber is a uniquely creative person who stands out as an originator of this breakthrough and as a leader in beginning these advancements to their full potential.

Prof. Christoph Gerber's work has been recognized with multiple honorary degrees and various awards and appeared in numerous articles in daily press and TV coverage. In 2001, together with the late Prof. Dr. Hans-Joachim Güntherodt and other researchers from the Department of Physics at the University of Basel, he was intensively involved in the creation of the National Center of Competence in Research "Nanoscale Science". This Program led to the start of the Swiss Nano Institute SNI in 2005 where he served as a co-director for 14 years. 2016 he has been awarded the Kavli Prize in Nanoscience together with Gerd Binnig and Calvin Quate for the Atomic Force Microscope. He is a Fellow of the American Physical Society, a Fellow of the World Technology Network and a Fellow of the IOP Institute of physics, UK. He serves on the advisory boards of several nano institutes and has chaired and co-chaired various international conferences.



“JOSÉ VASCONCELOS”
WORLD AWARD OF
EDUCATION 2023

LARRY V. HEDGES

The prize is awarded in recognition of Prof. Hedges’s groundbreaking and systematic application of research and his development of methods for meta-analysis over the past four decades which have contributed to more accurate assessment of evidence across disciplines.

The jury recognizes **Prof. Hedges's** dedication to improving the quality of education by rigorously applying scientific evidence to formulate effective policies and innovative training methods. The jury also enthusiastically highlights that his impact extends far beyond academic boundaries—it has led to local, national, and international institutions advancing education practices, products, and programs.

Prof. Hedges's vision of education as a vehicle to promote societal equity mirrors the commitment of José Vasconcelos, whose life work was dedicated to bringing education to all people regardless of their differences in cognitive abilities, gender, ethnicity or social class.

For more than four decades, Larry Hedges has devoted his energy to four areas: statistical methods for research synthesis and meta-analysis; statistical models for memory and cognition; educational policy analysis; and group differences in cognitive abilities. His work on the synthesis of research from replicated research studies (meta-analysis) is widely viewed to have transformed the practice of systematic reviewing of research in education and psychology.

Prof. Hedges's visionary leadership has substantially contributed to place education research in a pivotal role in education policy. For example, in the 1980s, many studies led economists to firmly conclude that school resources did not affect educational outcomes like

learning and achievement. This line of thinking implied that policies involving expanded resources to schools would make little difference to outcomes and therefore should not be considered. Hedges conducted a series of meta-analyses that engaged more rigorous methods. He showed that the very same studies that economists had used to suggest that there was no relation between resources and important educational outcomes actually showed that there was a positive relation between the two. Studies like this helped cement Hedges's application of meta-analysis as a crucial tool in contemporary applied statistics.

Meta-analysis, along with the rigorous systematic reviewing of it, has transformed the understanding of research evidence in education and related fields like psychology and numerous others, such as medicine, public health, and experimental ecology. Hedges's books: *Statistical Methods for Meta-Analysis*, *the Handbook of Research Synthesis and Meta-Analysis*, and his textbook *Introduction to Meta-Analysis* are enormously influential and highly cited. The software that he co-wrote, *Comprehensive Meta-Analysis*, is the most popular commercial software on the topic.

In addition to training his own students, Prof. Hedges has trained hundreds of established education research professionals. He has been elected to be Fellow of the American Academy of Arts and Sciences, the American Statistical Association, and the American Psychological Association.

Augmenting his remarkable academic accomplishments, Prof. Hedges has served on the Advisory Committee to the Director of the National Institutes of Health for Diversity Programs. He also served on the first International Technical Advisory Group for PISA, and on the US National Academy of Science's Board on International Comparative Studies in Education, which advised the U.S. Department of Education on policy for such studies.

In 2018 Prof. Hedges received the Yidan Prize for Education Research, and was named "one of the most influential applied statisticians in the world." He was lauded for his work in education policy which "allows policymakers, educators and the general public to see the evidence for 'what works' in the field of education, and makes it possible to take a scientific approach to improving education for future generations."

THE UNIVERSITY OF HELSINKI IN NUMBERS

We have been an integral part of the birth of the Finnish national identity and our welfare state since 1640. We believe passionately that with the power of knowledge, we can change attitudes, people and society – for the world.

11

faculties

96

bachelor's and master's programmes

30,996

degree students (26,100 bachelor's and master's students)

2,240

international degree students

8,381

employees (58% are teaching and research staff)

5,580

degrees (completed in 2022)

41,965

continous learners (971 Open University courses)

11,123

publications per year

[More information about the University of Helsinki](#)



WORLD CULTURAL COUNCIL SPECIAL RECOGNITIONS 2023

World Cultural Council grants special acknowledgements to eight people from the University of Helsinki who have achieved outstanding performance in the fields of science and education.



Maxime Grandin

The research of space physicist Maxime Grandin is geared towards improving our understanding of the connections between particles in the magnetosphere and the polar ionosphere with the help of high-class simulations and observations. He made crucial contributions to the discovery of dune auroras with the help of citizen science. Grandin carried out his doctoral studies at Sodankylä Geophysical Observatory and at Institut de Recherche en Astrophysique et Planétologie (Toulouse, France). He completed his doctorate at the universities of Oulu and Toulouse in 2017, and since 2018, he has worked as a post-doctoral researcher at the University of Helsinki.



Riikka Hohti

Dr. Riikka Hohti's research pushes the educational sciences to rediscover its core both theoretically and methodologically. Hohti's work, starting from her dissertation studies in 2016, has called attention to how we think and talk about children, adults, and education and study their entangled formations in ways that help us think with and solve global crises in the current environmental emergency. This makes Hohti's work both timely and highly relevant locally, nationally, and globally. Her current research projects, such as 'Children of the Anthropocene', examine shifting nature-culture relations and atmospheres, and advance attentiveness towards multispecies relations in society.



Juha Kangasluoma

Docent Juha Kangasluoma has specialised in research on aerosol measurements and related physical-chemical phenomena. Kangasluoma defended his doctoral thesis in aerosol physics at the University of Helsinki in 2015, and has subsequently worked e.g. as an R&D scientist at Karsa Oy and as visiting researcher in the Beijing University of Chemical Technology as a visiting scientist for establishing an atmospheric research station in Beijing, besides working at the University of Helsinki. With his research group at the University of Helsinki, Kangasluoma has developed measurement methodologies in his field, such as aerosol number and size distribution instruments, and cluster synthesis and characterization methods, as well as cooperating with instrument manufacturers.



Sonja Laine

Sonja Laine, PhD, is currently a university lecturer at the Department of Education, University of Helsinki. She was previously a lecturer at the University's Viikki Teacher Training School. Laine's success in combining research and the practice of teaching and guidance is exemplary. She collaborated with the school pedagogy research group to conduct an intervention program that aimed to develop primary school students' mindsets about learning. In 2020 the Nordic Mensa Fund presented Laine with its Article of the Year award. In her doctoral thesis, approved with the grade of pass with distinction, Sonja Laine examined Finnish class teachers' perspectives on gifted education. She represents Finland in two international organisations that provides advocacy and support for gifted and gifted education (ECHA and WCGTC).



Katrianne Lehtipalo

In her research, physicist Katrianne Lehtipalo focuses on measuring aerosol nanoparticles and the formation processes of particles in the atmosphere. Lehtipalo defended her thesis on aerosol physics at the University of Helsinki in 2011, and then worked as post-doc researcher at the University of Helsinki and as visiting researcher at the Paul Scherrer institute in Switzerland. Since 2018, Lehtipalo has worked as associate professor and since 2023 as professor at INAR at the University of Helsinki and at the Finnish Meteorological Institute. Lehtipalo has received honours such as the Vaisala Prize of the Finnish Academy of Science and Letters in 2022.



Katariina Mertanen

Katariina Mertanen, PhD, applies research on education and youth policy, sociology, digitalisation, changing governance and social justice to examine ambitious issues, such as the future of the education system and the role of education in building a socially sustainable future. In her doctoral thesis approved in 2020 at the University of Helsinki, Mertanen explored youth policies, education and guidance aimed at preventing the social exclusion and marginalisation of young people. She currently holds a fixed-term university lectureship at the University of Helsinki.



Antti Rajala

Dr. Antti Rajala's current work on utopias in education broadens the scope of research on learning and instruction beyond its conventional topics. Rajala's work exemplifies across-discipline collaboration and devotion to renewing the field of learning and instruction in ways that make it fitter to address current societal issues via rigorous educational research. Rajala's work focuses on designing research-based participatory pedagogical approaches which involve multiple different stakeholders and which focus on pressing societal issues. Antti Rajala is currently Senior Research Fellow at the University of Eastern Finland and Docent at the University of Helsinki.



Laura Riuttanen

University Lecturer in atmosphere sciences, Laura Riuttanen, PhD, is the INAR coordinator of Climate University, a national university network for education in climate and sustainability. She has participated in developing and teaching many popular online climate and sustainability courses, such as Ilmasto.nyt and Leadership for sustainable change, and establishing the European network for climate teaching, Climademy, and a new specialist training programme for climate experts. She is a meteorologist and studied the effects of air pollutants on the climate in her doctoral research. Today, she is the head of a research group in climate competence at the University of Helsinki.

For information about the WWC 2023 Helsinki please visit:
helsinki.fi/worldculturalcouncil2023

For information on the World Cultural Council please visit:
consejoculturalmundial.org

Read more about University of Helsinki at:
helsinki.fi

