For Women in Science

FONDATION L'ORÉAL

2021 INTERNATIONAL AWARDS

SUMMARY

ABOUT THE

Fondation L'Oréal

The Fondation L'Oréal supports and empowers women to shape their future and make a difference in society, focusing on three major areas: scientific research, inclusive beauty and climate action.

Since 1998, the L'Oréal-UNESCO *For Women in Science* program has worked to empower more women scientists to overcome barriers to progression and participate in solving the great challenges of our time, for the benefit of all. For 23 years, it has supported more than 3,600 women researchers from 117 countries, rewarding scientific excellence and inspiring younger generations of women to pursue science as a career.

Convinced that beauty contributes to the process of rebuilding lives, the Fondation L'Oréal helps vulnerable people to improve their self-esteem through free beauty and wellness treatments. It also enables underprivileged women to gain access to employment with dedicated vocational beauty training. On average, around 16,000 people have access to these free treatments every year and more than 18,000 people have taken part in professional beauty training, since the beginning of the program.

Finally, women are affected by persistent gender-based discrimination and inequalities, exacerbated by climate change. While they are on the frontline of the crisis, they remain under-represented in climate decision-making. *The Women and Climate* program of the Fondation L'Oréal supports, in particular, women who are developing climate action projects addressing the urgent climate crisis and raises awareness of the importance of gender-sensitive climate solutions.

ABOUT

UNESCO

Since its creation in 1945, UNESCO, the United Nations Educational, Scientific and Cultural Organization, has worked to create the conditions for dialogue among civilizations, cultures and peoples, based upon respect for commonly shared values. UNESCO's mission is to contribute to the building of peace, poverty reduction, sustainable development and intercultural dialogue through its unique competencies in education, sciences, culture, communication and information. The Organization focuses, in particular, on two global priorities: Africa and Gender Equality.

UNESCO is the only United Nations specialized agency with a specific mandate for Science, symbolized by the 'S' in the acronym. Through its natural sciences programs, UNESCO contributes to the overall implementation of the United Nations Sustainable Development Goals by providing policy assistance to support developing countries in strengthening their scientific and technological capacity, and to help Member States design effective policies that include local and indigenous knowledge systems. UNESCO is a driving force to advance scientific research and expertise in the developing world, and leads several intergovernmental programs for the sustainable management of freshwater, ocean and terrestrial resources, for biodiversity protection, and to promote science's role in combatting climate change and in disaster risk reduction.

Together with its national and regional offices around the world, UNESCO supports international scientific cooperation and works with a wide range of partners at global, regional and national levels. By joining forces with its partners, UNESCO can leverage resources, expertise and competencies to promote all its ideals and values and to strengthen the visibility and impact of its action in all areas where the Organization has leadership, recognized expertise and comparative advantage.

23 YEARS OF COMMITMENT

L'ORÉAL-UNESCO

For Women in Science

Over the last
23 YEARS,
more than
3,600
women scientists have been recognized.

117
Laureates honored for their excellence in science, including five who have gone on to win a scientific Nobel Prize.

3,500
Young Talents, PhD candidates and post-doctorates, were supported through financial support and leadership training.

52 national and regional programs in 117 COUNTRIES.

Over 50
high-level scientific institutions involved worldwide.

Over 500
scientists involved in the selection process for the national and regional programs.

THE 2021 LAUREATES

5 outstanding female scientists

LAUREATE FOR AFRICA AND THE ARAB STATES

Professor Catherine Ngila

CHEMISTRY

Awarded for introducing and developing nanotechnology based analytical methods for the monitoring of water pollutants, and applying them in heavily polluted countries. Her innovative work is of vital importance for the development of water resource management in an environmentally sustainable way.

LAUREATE FOR ASIA AND THE PACIFIC

Professor Kyoko Nozaki

CHEMISTRY

Awarded for her pioneering, creative contributions within the field of synthetic chemistry, and their importance to industrial innovation. Her research has led to new, highly effective and environmentally friendly production processes to manufacture molecules useful for medicine and sustainable agriculture.

LAUREATE FOR NORTH AMERICA

Professor Shafi Goldwasser

COMPUTER SCIENCE

Awarded for her pioneering and fundamental work in computer science and cryptography, essential for secure communication over the internet as well as for shared computation on private data. Her research has a significant impact on our understanding of large classes of problems for which computers cannot efficiently find approximate solutions.

LAUREATE FOR EUROPE

Professor Françoise Combes

ASTROPHYSICS

Awarded for her outstanding legacy in astrophysics which ranges from the discovery of molecules in the interstellar space to supercomputer simulations of galaxy formation. Her work has been crucial in our understanding of the birth and evolution of stars and galaxies, including the role played by supermassive black holes at galactic centers.

LAUREATE FOR LATIN AMERICA AND THE CARIBBEAN

Professor Alicia Dickenstein

MATHEMATICS

Awarded for her outstanding contributions at the forefront of mathematical innovation by leveraging algebraic geometry in the field of molecular biology. Her research enables scientists to understand the precise structures and behavior of cells and molecules, even at a microscopic scale. Operating at the frontier between pure and applied mathematics, she has forged important links to physics and chemistry, and enabled biologists to gain an in-depth structural understanding of biochemical reactions and enzymatic networks.

Professor Catherine Ngila

CHEMISTRY

Acting Executive Director of the African Academy of Sciences, Former Deputy Vice Chancellor in charge of Academic and Student Affairs (DVC-AA) at Riara University, Kenya, and Visiting Professor of Applied Chemistry at the University of Johannesburg, South Africa

Professor Catherine Ngila is awarded for her groundbreaking contribution to water quality and water resource management in Africa. Her entrepreneurial flair and enquiring scientific mind have seen her pioneer nanotechnology-based analytical methods for monitoring and removing industrial water pollutants, creating a major positive impact by enabling millions of families to benefit from safer drinking water. Prof. Ngila's chief innovation lies in using electro-spun, nano-absorbent fibers and nano-composite membranes (derived from chemical resins and biomass materials) to detect and remove trace metals (such as lead, zinc and aluminum) and toxic chemical substances. And her team's modeling of wastewater treatment plants is helping wastewater treatment plant managers in Johannesburg, South Africa, to improve their effluent discharge. As Africa continues to industrialize, her work will become ever more important in protecting human health and aquatic life.

"Water research is close to my heart in that, water is life!" says Prof. Ngila. *"Nanotechnology can play a vital role in water purification techniques. My dream is to produce a commercially viable water nano-filter that removes contaminants in one filtration cycle, enabling rural African families to install affordable water filters in their homes."*

Girls and women throughout the country and across Sub-Saharan Africa often walk long distances to collect water and firewood to purify it through boiling, typically over smoky cookstoves or by using fabric to act as a water filter. By scaling up the production of household water filters – using cost-effective materials such as agricultural 'waste' including sugarcane bagasse, maize stalks and dried algae, to absorb contaminants – more families would gain access to safe water.

As a child growing up in Kenya's Kitui County, Prof. Ngila experienced these challenges firsthand and saw the impact of this heavy domestic burden on girls' education. *"Before going to primary school, I would walk up to 3km to fetch water, and as soon as lessons finished for the day, I would run home to fetch firewood and later pound maize to prepare food,"* she says. *"Boys were exempted from household chores, so from an early young age, I felt discriminated against for being a girl. I promised myself that education would be my way out of hardship."*

Prof. Ngila persevered with her studies, encouraged by her father, a former tribal chief (her mother passed away when she was a young child). She had the good fortune to study at an all-girls secondary school, free from gender stereotypes, and here, her interest in chemistry blossomed, inspired by her chemistry teacher. She later graduated as the top student at Kenyatta University's science faculty in 1986, where she began pursuing her interest in water resource management.

With universities and laboratories in her native Kenya facing funding, resource and infrastructure challenges, Prof. Ngila continued her research in Australia, where she obtained her doctoral degree from UNSW in 1996 before returning to Kenya to lecture at Kenyatta University, and later in Botswana and South Africa. At the University of Johannesburg, she experienced a major 'Eureka' moment by using electro-spinning cellulose to extract individual nano-fibers. This had previously been thought impossible, as cellulose is restricted by its limited solubility in common solvents and inability to melt, preventing the separation of such fibers. Prof. Ngila and her doctoral student Stephen Musyoka overcame these challenges by applying a high voltage electric field to a modified cellulose solution, producing biopolymer nano-fibers with diameters in the range of 100-500nm – and delivering a high impact approach for water purification.

As a senior woman scientist in Kenya (where just five of the 31 public universities have women vice chancellors), Prof. Ngila has found it hard to break the glass ceiling, often finding herself sidelined by male counterparts in decision-making. The 'multi-tasking' burden faced by senior women scientists – conducting research while acting as role models and being the 'token woman' on multiple boards and councils – also undermines their ability to flourish personally and professionally. It may even result in reinforcing their sense of isolation and exclusion from laboratory working culture, which in turn limits their career opportunities. In some cases, it can leave women susceptible to harassment. Despite this, she remains undeterred in her conviction to fight gender discrimination.

"Excellent science and innovation require the talents of both women and men," she says. *"We need the complementary skills and values of both genders to create a balanced, holistic approach to leadership."* As the Acting Executive Director of the African Academy of Sciences (AAS) and former Chair of the AAS working group on education and gender, Prof. Ngila dreams of both influencing decision-making and STEM policy for women and girls, and mobilising research funding to establish a state-of-the-art laboratory for promising analytical chemists. When women scientists are able to form a "critical mass" in the workplace, they will be able to better advocate for themselves and build stronger support networks.

She considers that the L'Oréal-UNESCO *For Women in Science* International Awards will *"enable [her] to continue [her]commitment to science with energy and passion, and act as a strong role model for women and girls in Africa".*

Professor Kyoko Nozaki

CHEMISTRY

Professor of Chemistry at the University of Tokyo, Japan

Professor Kyoko Nozaki is awarded for her pioneering and transformative contribution to the field of synthetic chemistry. Her world-leading research in designing molecular catalysts for new types of organic and polymer synthesis has led to highly effective, sustainable production processes that help multiple industries to improve productivity and efficiency, while saving energy and reducing waste. In particular, through her focus on developing catalysts for polymerization,[1] she is making significant advances in improving the performance and ecological credentials of polypropylene (PP), a plastic of great interest to industry.

Prof. Nozaki is currently leveraging her expertise to develop a high-performing PP - polar polypropylene - for car manufacturing, which can be made without the addition of harsh chemicals, is recyclable and improves fuel efficiency. She has also made an important contribution to synthesizing plastics from renewable resources, most notably from carbon dioxide.

"The sheer versatility of chemistry allows us to create new substances that stand to change the world by enabling new technologies," she says. *"When I first applied the catalyst originally invented for drug synthesis to plastic synthesis, I was thoroughly impressed by the opportunities for its application in diverse fields."*

At school, Prof. Nozaki liked physics and was encouraged by her teacher to continue her interest in science. But it was her undergraduate studies that really instilled in her a lifelong love of chemistry.

"I was thrilled by the fact that I was the first person ever to conduct these experiments and see the results," she says. *"I planned experiments almost every day based on my own hypotheses. It was like asking questions to Mother Nature. For a short while, she kept answering 'No, you are wrong'. But she gave subtle hints occasionally, and one bright autumnal day, she answered 'Yes, correct'. Since then, I've stayed in the lab simply because I do not want to stop asking."*

Prof. Nozaki's scientific dream is to make a microwave with which she could synthesize complicated organic molecules from CO_2 (carbon dioxide), H_2O (water), and N_2 (nitrogen) according to a programed recipe, helping to avoid the waste associated with building complex organic molecules step by step. *"It would be like building a monumental LEGO architecture by simply mixing the necessary LEGO pieces in a bag,"* she explains.

Throughout her career, Prof. Nozaki has been encouraged and inspired by entrepreneurial chemists who *"never compromised and applied great determination to pursuing the truth"*. For example, she admires Prof. Yoshio Okamoto for creating a new field of research - asymmetric synthesis of helical polymers - which is now widely used in pharmaceutical companies. *"His style and continuous research from fundamental science to practical application is truly impressive,"* she says. Profs Reiko Kuroda and Maki Kawai, both former L'Oréal-UNESCO *For Women in Science* International Awards Laureates, have also been compelling role models for Prof. Nozaki since her student days.

Her own determination and pioneering journey have seen Prof. Nozaki become the first and only woman professor in Tokyo University's Engineering Department, and one of the rare women professors of science in the region. Since taking the post in Tokyo in 2002, her brilliance has been recognized by numerous international awards, including the 2019 Kuggie Vallee Distinguished Lecturer and the 2020 Chemical Society of Japan awards. She hopes that her publications and findings will inspire researchers in both academia and industry to further nurture her discoveries.

Prof. Nozaki remains disheartened by the disproportionately low number of women scientists in leadership roles, especially *"compared to their ability, flexibility and openness to new ideas."* An openness for which international collaboration is vital, she believes. *" When I began my professional career, I believed the number of women would naturally increase, but I now realize continuous efforts for change are indispensable."*

"It's partly a question of entrenched values," she says. *"For example, in Japan, 'Kawaii' – which encompasses the idea of sweet-natured naivety – is too often considered the most favorable attribute for women. A 'non-Kawaii' woman may face difficulty in remaining true to her personality. Indeed, being competitive and aggressive is still considered as 'manly' in most cultures."*

There should be no gender stereotyping in society or in science, she believes, and to overcome such perceptions, *"it is truly important to highlight the contributions of outstanding women scientists to the world."*

"I believe not only boys but also girls should enjoy the exciting world of science," she concludes. *"Enjoy life and enjoy science – that's my message."*

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[1] *A chemical reaction in which two or more molecules combine to form larger molecules.*

Professor Shafi Goldwasser

COMPUTER SCIENCE

Director of the Simons Institute for the Theory of Computing, Professor in Electrical Engineering and Computer Sciences at University of California Berkeley, RSA Professor of Electrical Engineering and Computer Science at MIT, United States of America and Professor of Computer Science and Applied Mathematics at Weizmann Institute, Israel

Professor Shafi Goldwasser is awarded for her pioneering work in theoretical computer science and cryptography, a rapidly expanding field exploring the myriad ways to protect digital information. Her outstanding contribution to ensuring the integrity, authenticity and confidentially of digital information is of fundamental importance at a time of profound and growing concerns over cyberattacks and data privacy.

In particular, she has defined the full spectrum of potential attacks on any code and designed randomized codes to combat them. She has also developed new tools for verifying the properties of data without disclosing it, and conceived secure methods for partnerships among competing entities while protecting their individuals' data.

In addition to helping to preserve anonymity and privacy, and prevent financial crimes such as money laundering, her work will allow companies to benefit from secure cloud computing and machine learning on personal data, as well as enable safer worldwide collaborations between governments and health organizations. It will also finally preserve privacy at various tiers, the need for which has become critically apparentduring the global fight against COVID-19.

"I hope that my work will contribute to improving the welfare of society by enabling us to collaborate and share data and algorithmic insights without compromising people's privacy, across sectors and geographical borders," says Prof. Goldwasser. *"Cryptography and security are central to our ability to use the digital communication platforms we currently rely upon for every aspect of our lives, from finance to medical discoveries, while respecting our privacy and rights."*

As a child growing up in Israel, Prof. Goldwasser was interested in becoming a fiction writer, but soon transitioned to science, inspired by her dynamic and encouraging physics and mathematics teachers, and the lure of scientific reasoning. Her passion for cryptography began during her years as a graduate student, when she was fascinated by the ability to leverage basic number theory to emulate fundamental paradigms - such as secrecy, simultaneity, unpredictability and fairness - in a digital context.

"I remember my thesis adviser posing the challenge of using computational mathematical modeling to determine how a contest between two distrustful people could be won fairly," she recalls. *"That was an 'aha' moment for me - the idea that mathematics could emulate such a simple, real-life scenario made me wonder how the same techniques could be applied to running secure protocols over the internet".*

"The exhilaration of solving problems such as this has been a driving force for me," she continues. *"I'm captivated by the beauty of a problem and its conceptual appeal. One of the many breakthroughs I experienced was realizing that the complexity of a problem known as 'quadratic residuosity' can enable sending a single bit securely, preventing cyber criminals from predicting it with more than 50-50 probability."*

Prof. Goldwasser won the Turing Award – the most prestigious global prize in computer science remove globally - in 2012, becoming one of just three women to have ever been honored in this way. Among her other numerous prizes, she has also won the Gödel Prize twice (in 1993 and 2001), and is a member of the United States' National Academy of Sciences.

Both the United States and her native Israel have helped shape her scientific development, and she recognizes the positive, galvanizing effect of international collaborators and encouraging, supportive colleagues.

As a woman in science, Prof. Goldwasser notes the difficulty of being taken seriously or perceived as equal at times, early in her career, but even later too. She made it clear to her peers and colleagues that she was *"someone to be listened to and reckoned with".* She credits the leading women scientists of today with both tenacity and brilliance, praising their ability to rise above derogatory, discriminatory attitudes and harness intuition, integrity and collaboration to prevail in their fields.

The fundamental challenge of achieving work-life balance as a mother and scientist, and progressing as rapidly as male counterparts, remains a cause for concern for women in science, she believes.

"I was lucky to have a supportive family and friends, which was very important for my eventual success, but those first years as a mother can be isolating for women scientists," she says. *"We must keep raising this disparity throughout our scientific community to emphasize the need for change, supported by evidence. Achieving gender equality in science will lead to better science, a better workforce, and better educated children in future generations."*

Commenting on her L'Oréal-UNESCO *For Women in Science* International Award, she concludes: *"I am so proud to be part of a group of women who are changing the world."*

Professor Françoise Combes

ASTROPHYSICS

Professor and Galaxies and Cosmology Chair at the Collège de France in Paris, and Astrophysicist at the Paris Observatory - PSL, France

Professor Françoise Combes is awarded for her groundbreaking contribution to astrophysics, and in particular, the critical role she has played in informing our understanding of how stars and galaxies form and evolve. Her pioneering discoveries in galactic dynamics range from identifying numerous molecules in interstellar space to decoding the precise stages of galactic evolution – all the way back to the Big Bang.

She is notably leading research on an amino acid, glycine, molecular oxygen and water in very distant galaxies, in order to detect possible signs of life. Her research has also been instrumental in demonstrating that supermassive black holes at galactic centers slow the formation of stars within them.

"In fundamental astrophysics, our research helps to increase humanity's knowledge of the universe, better understand our origins and consider the potential existence of other life forms," says Professor Combes. *"The scientific community is leveraging imaginative models to pursue many unsolved puzzles, such as the existence of dark matter and dark energy – and the answers will certainly change the fundamental laws of the universe."*

Prof. Combes first realized the incredible impact of scientific research for human life as a teenager, and knew she wanted to play a part in future discoveries. She marveled at Nicolas Copernic's 'controversial' hypothesis that the Earth was not, in fact, at the center of the universe, and Louis Pasteur's revolutionary medical breakthroughs.

But it was the first human landing in space that really captured her imagination. *"I was deeply impressed by the Apollo mission and completely glued to my grandmother's small television screen as Neil Armstrong took his first steps on the moon,"* she recalls. *"It was like a fairy tale to see a person clad in a space suit walking and jumping on the moon, just like the adventures of Tintin!"*

Encouraged by her physics teacher at school, she pursued physics and later astrophysics and cosmology at university, where she was fortunate to learn from the dynamic and visionary Professor Evry Schatzman. During her early career, Prof. Combes made her name by discovering carbon monoxide molecules in the Andromeda galaxy, some 2.2 million light years from the Earth.

Among the many illuminative moments in her research to date, Prof. Combes recalls various serendipitous discoveries. *"I remember the exact moment at the telescope when we discovered molecules in absorption in front of a remote quasar[1] – this prompted a long and fruitful research project on electromagnetic absorption lines,"* she says. *"More recently, we discovered the spiral mechanism that drives interstellar gas at the center of a galaxy."*

As an astrophysicist in France, Prof. Combes has benefitted from Europe's comprehensive research and access to sophisticated telescopes, such as ESO's large optical telescopes in Chile, or the millimeter-wave telescopes developed by NOEMA and ALMA. Together with telescopes in space, these ground-level instruments have provided her with a wealth of data for comparison with ever more advanced computer simulations.

And her decisive research has delivered great value, winning her both national and international accolades. She has been a member of the French Academy of Sciences since 2004 and counts among her numerous prizes the CNRS Gold Medal (French National Center for Scientific Research), one of France's most prestigious scientific distinctions.

On her journey to becoming a senior woman scientist, Prof. Combes faced challenges in balancing her many research, teaching and family responsibilities, particularly when travelling to conduct observations from foreign telescopes. The *"long and uncertain path"* after PhD is also cited by Prof. Combes as a barrier for women's progression in science. In those initial precarious years of her career, it was 14 years before she obtained her first permanent position at the Paris Observatory, a journey requiring immense fortitude and perseverance.

Encouraging more women to enter science starts with overturning societal stereotypes and prejudices, with girls, in particular, and boys encouraged to understand that they can do anything they want, she believes.

"Women scientists have so much to offer – they bring diversity and originality to a laboratory, and a practical, results-oriented approach," she enthuses. Importantly, senior women scientists can act as compelling role models for girls and younger women, helping up-and-coming scientists to build their self-confidence.

Prof Combes' words of advice are: *"If you feel it is your vocation, and you're happy doing research, you should never be discouraged, but always persevere. And don't feel afraid to step back from obstacles, renew your energy and return with a different perspective. The challenges will appear lighter and easier to solve."*

[1] *The nucleus of a very distant galaxy that looks like a very bright star.*

Professor Alicia Dickenstein

MATHEMATICS

Professor of Mathematics at the University of Buenos Aires, Argentina

Professor Alicia Dickenstein is operating at the forefront of mathematical innovation by leveraging algebraic geometry in the realm of molecular biology to understand the precise structures and behaviors of molecules and cells, even at a microscopic scale. As an outstanding mathematician operating at the frontier between pure and applied mathematics, she has also forged important links to physics and chemistry. Her passion lies in helping biologists to build an in-depth structural understanding of biochemical reactions and enzymatic networks, and it's here that she has made the most impact. Unraveling these complex systems enables researchers to predict how concentrations of chemical elements within cells evolve over time. This could help determine the appropriate concentration of medicine to provide to a patient, for example.

In particular, Prof. Dickenstein specializes in identifying computational mathematical models to help biologists advance their research – models that can be applied even without knowing all the parameters that define what takes place within a cell. She has detected an underlying mathematical structure in many popular signaling pathways, which she named MESSI systems, as they describe Modifications of type Enzyme-Substrate or Swap with Intermediates. This allowed her and her collaborators to prove theorems about the behavior of diverse biological mechanisms.

Similarly, her research on discriminants – used to describe the singularities of geometric objects – has applications in mathematical modeling to detect when a surface has special points that are not smooth, with angles or cusps. It can also predict singular points that a robot manipulator has to avoid to due to potential breakage.

"I believe that science is a collective endeavor, and I am happy to have created bridges between different branches of mathematics and real-life scientific applications, helping researchers in diverse fields to make further discoveries," she says. *"My dream is that science will enable us to prevent painful diseases and help to create a world where nature is no longer degraded and polluted."*

A Professor at the University of Buenos Aires, Argentina, Prof. Dickenstein was elected a member of the Academy of Exact, Physical and Natural Science of Argentina in 2018 and the National Academy of Sciences of Argentina in 2020, and has previously held the post of Vice President of the International Mathematical Union, only the second woman to have done so. Among her many awards and recognitions, she won the TWAS[1] prize for Mathematics in 2015. She has also written and coordinated the production of numerous mathematical books, particularly for children.

Prof. Dickenstein had always enjoyed maths at school, and recalls the joy of looking at cells through a microscope. Her career has seen her make great strides since then, working directly on the biological applications of mathematics. But it almost began by chance. *"Mathematics is an exciting and creative subject,"* she says. *"I was inspired to study maths by taking a vocational test at school to help determine my path at university. I had no idea I was destined for a mathematical future, but as soon as I began my studies at the University, I knew I had found my place."*

In a scientific field with a particularly low representation of female researchers, Prof. Dickenstein is driven by a longstanding conviction that women can do anything, a belief that was both nurtured by her school and her family. She remains keenly aware of the obstacles for women scientists in gaining equal research and career opportunities, and the subtle, yet persistent forms of gender discrimination that continue throughout society. *"One of the greatest challenges is ensuring that women scientists do not conform to the expected social behavior of women,"* she says. *"But this is changing and I am very hopeful for the next generations."*

Among the promising signs of change, she notes the recent recognition of women at the highest echelons of science – through the Abel Prize in Mathematics in 2019 and the Nobel Prizes in Physics and Chemistry in 2020. Yet, there is still a way to go to achieve gender equality in science. And in 2020, women experienced further challenges in balancing their work-life responsibilities, when the Covid-19 pandemic prompted the closure of schools and nurseries.

For Prof. Dickenstein, the benefits of gender equality in science are clear. *"If we make the natural assumption that talent is equally distributed, we are losing many talents if there is no balance between genders,"* she says. *"Diverse points of view always enrich the understanding of any question… I would recommend that girls follow their dreams and disregard conventional stereotypes and perceptions of what they should do as women."*

And she hopes that the L'Oréal-UNESCO *For Women in Science* International Awards will continue to do much to inspire girls in Argentina and globally to study science. *"I'm very proud and honored to have been recognized among so many excellent women scientists in Latin America and the Caribbean,"* she concludes. *"My journey to this moment has been fraught with challenges, yet consistently illuminated by discovery and the never-ending wonder of science."*

[1] *TWAS – The World Academy of Sciences for the advancement of Science in developing countries.*

THE SELECTION PROCESS

296 nominations from scientists

FROM 66 COUNTRIES

Each nomination is reviewed
by 2 senior scientific experts
in the candidates' field
of research

59 short-listed candidates

FROM 28 COUNTRIES

Evaluated by an international Jury
of 12 eminent scientists

Selection of the 5 Laureates

1 from each of the world's regions

2021
International Jury

L'ORÉAL-UNESCO
FOR WOMEN IN SCIENCE AWARDS

Physical Sciences – Mathematics - Computer Science

The International Jury consists of 12 outstanding research scientists in the area of the Awards while respecting gender parity and diversity in terms of disciplines and geographies. Each member evaluates every short-listed nominee before selecting all together the 5 Awards winners.

Professor Artur Avila, PRESIDENT

Professor at Institute of Mathematics University of Zurich, SWITZERLAND
Extraordinary Researcher, IMPA (Instituto de Mathematica Pura e Aplicada), Rio de Janeiro, BRAZIL 2014 Fields Medal

Professor Silvia Torres-Peimbert

Professor at Institute of Astronomy National Autonomous University of Mexico, MEXICO
L'Oréal-UNESCO Laureate 2011

Professor Vivian Wing-Wah Yam

Philip Wong Wilson Wong Professor in Chemistry and Energy and Chair Professor of Chemistry, Department of Chemistry, University of Hong-Kong, CHINA
L'Oréal-UNESCO Laureate 2011

Professor Jehane Ragai

Professor Emerita, Department of Chemistry, School of Sciences and Engineering, The American University in Cairo, EGYPT

Professor Eugenia Kumacheva

Canada Research Chair in Advanced Polymer Materials, Department of Chemistry, University of Toronto, CANADA
L'Oréal-UNESCO Laureate 2008

Professor Tebello Nyokong

Director of DST/Mintek Nanotechnology Innovation Centre, Department of Chemistry, Rhodes University, SOUTH AFRICA
L'Oréal-UNESCO Laureate 2009

Doctor Frédéric Leroy

Expert in Analytic Physics and Chemistry and former Director, Strategic Foresight, L'Oréal Research and Innovation, FRANCE

Professor Fernando Quevedo

Professor of Theoretical Physics at University of Cambridge, Department of Applied Mathematics and Theoretical Physics (DAMTP), UNITED KINGDOM

Professor Rajaa Cherkaoui El Moursli

Resident member of the Hassan II Academy of Science and Technology, Member of TWAS Fellow of the African Academy of Sciences, Professor of Nuclear Physic at the Faculty of Science, Mohammed V University, MOROCCO
L'Oréal-UNESCO Laureate 2015

Professor Ingrid Daubechies

James B. Duke Professor of Mathematics and Electrical and Computer Engineering, Duke University, NC, UNITED STATES OF AMERICA
L'Oréal-UNESCO Laureate 2019

Professor Gil Kalai

Professor, Efi Arazi school of Computer Science, The Interdisciplinary Center, Herzliya, ISRAEL
Henry and Manya Noskwith Professor Emeritus, Einstein Institute of Mathematics, Hebrew University of Jerusalem, ISRAEL

Professor Alaa Salem

Professor at Department of Earth Sciences, Faculty of Sciences, Kafrelsheikh University, EGYPT

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For Women in Science program are available on
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