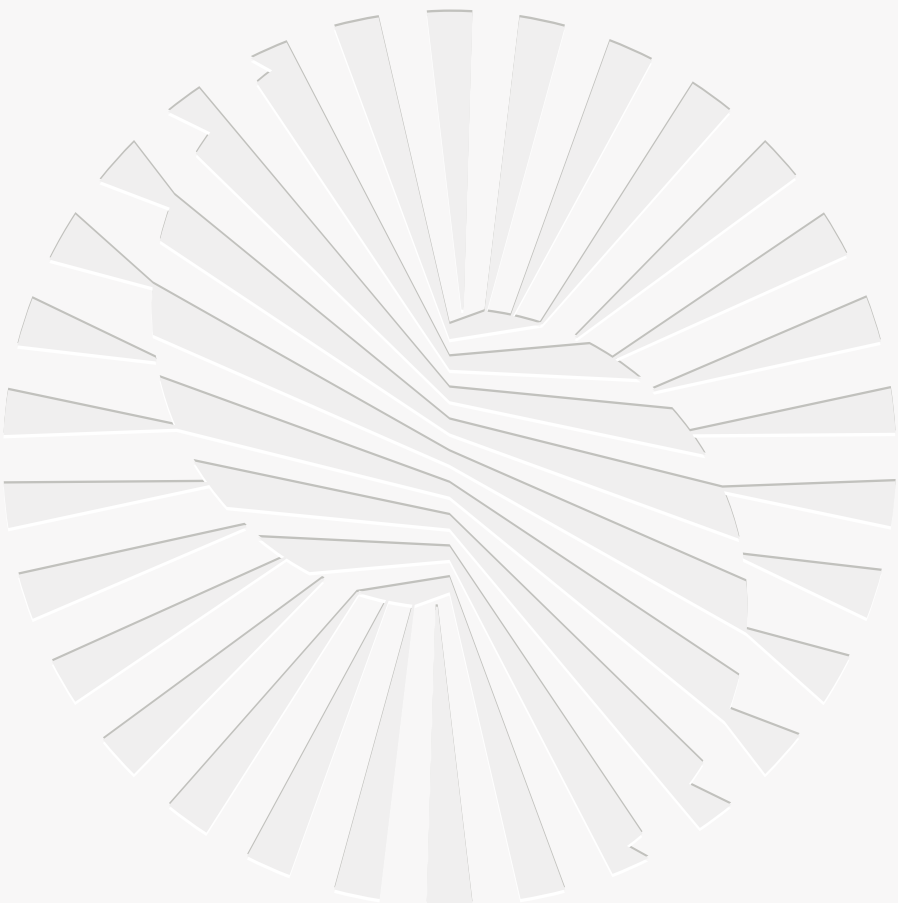
THE SHAW PRIZE 2025 AWARD PRESENTATION



For the Benefit of Humankind

The Shaw Prize is an international award to honour individuals, regardless of race, nationality, gender and religious belief, who are currently active in their respective fields and who have recently achieved distinguished and significant advances, who have made outstanding contributions in academic and scientific research or applications, or who in other domains have achieved excellence. The award is dedicated to furthering societal progress, enhancing quality of life, and enriching humanity's spiritual civilisation.

Preference is to be given to individuals whose significant works were recently achieved and who are currently active in their respective fields.

THE
SHAW
PRIZE
邵逸夫獎

Founder

MR RUN RUN SHAW
(1907–2014)

Mr Shaw, born in China in 1907, was a native of Ningbo County, Zhejiang Province. He joined his brother's film company in China in the 1920s. During the 1950s he founded the film company Shaw Brothers (HK) Limited in Hong Kong. He was one of the founding members of Television Broadcasts Limited (TVB) launched in Hong Kong in 1967. As an established figure in the film and media industry, Mr Shaw gained insight into the needs of the people, and as a visionary he saw how, in addition to the fleeting escapism of entertainment, the more substantial benefits of education and healthcare would greatly impact lives for the better. He established two charities: The Shaw Foundation Hong Kong and The Sir Run Run Shaw Charitable Trust, both dedicated to the promotion of education, scientific and technological research, medical and welfare services, and culture and the arts.

The Shaw Foundation quickly gained momentum in a wide range of philanthropic work: supporting educational institutions as well as hospitals and clinics in Hong Kong, the rest of China and beyond. Expanding his vision into new areas convinced him that the quest for knowledge is key to sustaining the advancement of civilisation, and strengthened his belief that scientists focussed on unmasking the mysteries of nature are pivotal to the well-being of humankind. He decided to use his influence, and with the unfailing support of his wife Mrs Mona Shaw, established The Shaw Prize to inspire and recognise imaginative individuals committed to scientific research and to highlight their discoveries.

The Award continues to gain in stature, casting a beam of recognition on outstanding scientific achievements, and firing the imagination of pioneers who follow him in spirit and in deed, sustaining the continued success of the Shaw Foundation and the Shaw Prize Foundation as lasting tributes to his wisdom and generosity.

Message from the Chief Executive

THE HONOURABLE
JOHN KC LEE
Chief Executive
Hong Kong Special Administrative Region

It gives me great pleasure to congratulate this year's four Shaw Prize Laureates, whose pioneering research has reshaped our understanding of the universe, redefined the boundaries of biological discovery and reimagined mathematical frameworks.

The Shaw Prize annually honours individuals who have made groundbreaking contributions in three broad fields of academic and scientific research or applications: astronomy, life science and medicine, and mathematical sciences. Since the Award was first introduced, in 2004, 114 distinguished individuals have been awarded the Shaw Prize. Each, in their own innovative and inimitable way, has advanced our understanding of science, society and human existence. The Government is proud to share the Shaw Prize Foundation's mission of promoting scientific excellence. Through strategic investments in education, innovation and technology, we enable our research and educational institutions to maintain Hong Kong's international competitiveness, thereby realising our vision of developing Hong Kong into an innovation and technology centre.

Apart from recognising world-renowned scientists through the Shaw Prize, the Foundation also contributes significantly to its mission by actively inspiring the next generation. These include hosting the annual Shaw Prize lectures at three Hong Kong universities; arranging our students to engage directly with Laureates and organising the annual Astronomy Laureate lecture at the Hong Kong Space Museum.

The Government proudly echoes the Shaw Prize Foundation's mission to advance scientific excellence and cultivate global talent. Through strategic investments in education, innovation, and technology, we empower our higher education institutions as engines of world-class research, underpinned by a robust research and development policy framework. Our institutions house brilliant students and scholars who are capable of tackling the most pressing challenges of our time. By strengthening support for researchers and cultivating a research-centric environment, we aim to sustain Hong Kong's long-term competitiveness and reinforce its status as a world-class city and an international hub for post-secondary education. With the Government's dedication, and the support of a series of policy measures, Hong Kong's higher education system has demonstrated extraordinary performance that according to the "World University Rankings 2026" published by an international higher education organisation Quacquarelli Symonds in June 2025, our universities have continued to hold top spots, with five of them staying in the world's top 100.

I am grateful to the Shaw Prize Foundation, its Council Members, the Board of Adjudicators and the Shaw Prize Selection Committees for their extraordinary efforts in recognising and championing scientific achievement at the very highest levels. I am confident that the Shaw Prize Foundation and its Laureates will continue to pursue a future enriched by discovery and collective progress.

Message from the Chair of the Board of Adjudicators

PROFESSOR REINHARD GENZEL

Chair, Board of Adjudicators
Shaw Prize 2025

Welcome to the twenty-second Annual Shaw Prize Award Presentation Ceremony. In 2002 Sir Run Run Shaw and Mrs Mona Shaw established the Shaw Prize to honour scientists in the fields of Astronomy, Life Science and Medicine, and Mathematical Sciences. The inaugural Award Ceremony took place in 2004. In the ensuing years, the Shaws' entrepreneurship and philanthropy inspired the quest for new knowledge, highlighted outstanding achievements, and became a major force for progress in the world.

We are proud to be able to continue the founding vision of Mr and Mrs Shaw in promoting scientific discoveries whose beacons of truth and long-term contributions to society only shine brighter in these difficult times.

This year, we honour four scientists in the three designated fields for their distinguished contributions. They are Professor John Richard Bond and Professor Geroge Efstathiou in Astronomy, Professor Wolfgang Baumeister in Life Science and Medicine, and Professor Kenji Fukaya in Mathematical Sciences. In the name of the Shaw Prize Council and the three respective Selection Committees, I would like to convey our warmest congratulations to all laureates for their fantastic achievements.

The Shaw Prize Medal

The front of the medal displays a portrait of Mr Run Run Shaw, next to which are the words and Chinese characters for the title of "The Shaw Prize".

On the reverse side, the medal shows the award category and year, the name of the laureate, and in the upper right corner, the logo mark of the Shaw Prize.

2025
THE SHAW PRIZE IN
ASTRONOMY
邵逸夫天文學獎

2025
THE SHAW PRIZE IN
LIFE SCIENCE AND
MEDICINE
邵逸夫生命科學與醫學獎

2025
THE SHAW PRIZE IN
MATHEMATICAL
SCIENCES
邵逸夫數學科學獎

Programme

Grand Hall, Hong Kong Convention and Exhibition Centre–21 Oct 2025

OPENING ADDRESS

Professor Kenneth Young	Chair of the Council Vice Chair of the Board of Adjudicators
The Honourable John KC Lee	The Chief Executive of HKSAR

SPEECH ON THE PRIZE IN ASTRONOMY

Professor Reinhard Genzel	Chair of the Board of Adjudicators Former Chair of the Selection Committee for the Prize in Astronomy

SPEECH ON THE PRIZE IN LIFE SCIENCE AND MEDICINE

Professor Dennis YM Lo	Member of the Selection Committee for the Prize in Life Science and Medicine

SPEECH ON THE PRIZE IN MATHEMATICAL SCIENCES

Professor Hélène Esnault	Member of the Board of Adjudicators Chair of the Selection Committee for the Prize in Mathematical Sciences

AWARD PRESENTATION

Professor John Richard Bond	The Prize in Astronomy
Professor Geroge Efstathiou	The Prize in Astronomy
Professor Wolfgang Baumeister	The Prize in Life Science and Medicine
Professor Kenji Fukaya	The Prize in Mathematical Sciences

ACCEPTANCE SPEECHES BY SHAW LAUREATES

	The Prize in Astronomy
	The Prize in Life Science and Medicine
	The Prize in Mathematical Sciences

PERFORMANCE

HIGHLIGHT CLIPS OF FEATURE STORY OF THE SHAW LAUREATES 2025

The Shaw Prize 2025

Astronomy

PROFESSOR SCOTT D TREMAINE

Member of the Board of Adjudicators
Chair of the Selection Committee
for the Prize in Astronomy

Professor Scott D Tremaine received his undergraduate degree from McMaster University in Canada and his PhD in Physics from Princeton University. He has held faculty positions at MIT, the University of Toronto, and Princeton University.

At the University of Toronto he was the first Director of the Canadian Institute for Theoretical Astrophysics, from 1985 to 1996, and at the Princeton University he chaired the Department of Astrophysical Sciences from 1998 to 2006. He was the Richard Black Professor at the Institute for Advanced Study in Princeton from 2007 to 2020. He is currently an Emeritus Professor at Princeton University and the Institute for Advanced Study and a Professor at the University of Toronto.

He is a Fellow of the Royal Societies of London and of Canada and a Member of the US National Academy of Sciences. His awards include the Dannie Heinemann Prize for Astrophysics, the Tomalla Foundation Prize for Gravity Research, the Dirk Brouwer Award, the Henry Norris Russell Lectureship of the American Astronomical Society, and honorary doctorates from McMaster, Toronto, Waterloo, and St Mary's University.

His research has been focused on the dynamics of astrophysical systems, including planet formation and evolution, planetary rings, comets, supermassive black holes, star clusters, galaxies, and galaxy systems.

John Richard Bond
George Efstathiou

For their pioneering research in cosmology, in particular for their studies of fluctuations in the cosmic microwave background. Their predictions have been verified by an armada of ground-, balloon- and space-based instruments, leading to precise determinations of the age, geometry, and mass-energy content of the universe.

The Shaw Prize in Astronomy 2025 is awarded in equal shares to John Richard Bond, Professor of the Canadian Institute for Theoretical Astrophysics and University Professor at the University of Toronto, Canada and George Efstathiou, Emeritus Professor of Astrophysics at the University of Cambridge, UK for their pioneering research in cosmology, in particular for their studies of fluctuations in the cosmic microwave background. Their predictions have been verified by an armada of ground-, balloon- and space-based instruments, leading to precise determinations of the age, geometry, and mass-energy content of the universe.

Cosmology has undergone a revolution in the past two decades, driven mainly by increasingly precise measurements of the angular power spectrum of fluctuations in the temperature and polarization fields of the cosmic microwave background, a relic of the early universe, most notably by NASA's Wilkinson Microwave Anisotropy Probe spacecraft (2001–2010) and the European Space Agency's Planck spacecraft (2009–2013). These fluctuations are small—the strength of the background radiation is the same in all directions to better than 0.01% and it is only slightly polarized—but they offer a glimpse of the universe when it was very young, a test of many aspects of fundamental physics, insights into the nature of dark matter and dark energy, and measurements of many fundamental cosmological parameters with accuracies unimaginable to cosmologists a few decades ago.

Although many researchers contributed to the development of the theoretical framework that governs the behaviour of the cosmic microwave background, Bond and Efstathiou emphasised the importance of the background as a cosmological probe and took the crucial step of making precise predictions for what can be learned from specific models of the history and the composition of the mass and energy in the universe. Modern numerical codes used to interpret the experimental results are based almost entirely on the physics developed by Bond and Efstathiou. Their work exemplifies one of the rare cases in astrophysics where later experimental studies accurately confirmed unambiguous, powerful theoretical predictions. The interpretation of these experiments through Bond and Efstathiou's theoretical models shows that the spatial geometry of the observable universe is nearly flat, and yields the age of the universe with a precision of 0.15%, the rate of expansion of the universe with a precision of 0.5%, the fraction of the critical density arising from dark energy to better than 1%, and so on. The measurements also strongly constrain theories of the early universe that might have provided the initial "seed" for all the cosmic structure we see today, and the nature of the dark matter and dark energy that dominate the mass-energy content of the universe.

Both Bond and Efstathiou have worked closely with experimentalists to bring their predictions to the test: they have been heavily involved in the analysis of cosmic microwave background data arising from a wide variety of experiments of growing sophistication and accuracy.

The Shaw Prize is also intended to recognise Bond and Efstathiou's other contributions to cosmology. Bond and his collaborators introduced the concept of the "cosmic web", the network of filaments and sheets that connects individual galaxies to larger structures such as groups and clusters of galaxies, developed the mathematical theory of the statistics of peaks of Gaussian random fields that underlies our understanding of clustering of galaxies in the universe, and made fundamental contributions to our understanding of primordial non-Gaussianity arising during the inflationary phase of the early universe. Efstathiou has been one of the leaders in the study of the clustering and evolution of galaxies as revealed by ever larger and deeper galaxy surveys, was an early advocate for a universe whose mass-energy was dominated by dark energy, and with his collaborators developed *N*-body simulations as a powerful tool for studying large-scale structure in the universe. He also played a leading role in the analysis of data from the Planck spacecraft. More generally, their research touches on almost every aspect of modern cosmology and has made fundamental contributions to the establishment of the standard cosmological model.

John Richard Bond

LAUREATE IN ASTRONOMY 2025

‘And I continue to write my lab books, and integrate my current cosmic knowing into a Gamow-like tale of “life, the universe, and everything”.’

JOHN RICHARD BOND

I was born in 1950 in Toronto, Canada, spent my primary and high school years living a middle-class existence in a country that I thought then, and continue to think, is a paragon of community ideals that I value, even in this crazy world of here and now, that may or may not be careening out of control. My paternal side was "United Empire Loyalist", leaving the USA at the American revolution for very early Ontario as British patriots. The ancestral rest were midlands English and Scottish, with an eighth Irish, and a dash of Norse from northernmost Scotland.

Brought up on tea and Sunday roasts, I purposefully, and regretfully, hid my talent growing up to be well-integrated in the exterior, but my interior became enamoured with the history of human thought in all aspects—symbolism, ancient wisdom, and ultimately science, which means knowledge, encompassing all. And physics and maths were to me promised to be, and became for me, the essence of human knowing. As a teenager, I wanted to write, and I have written to myself almost daily throughout my long career, on my science thought, to be sure, but also on my understanding of self—my self and your selves: nearly a thousand "lab books" with only a small fraction released to the world as papers, not the best method to optimize a career, but cosmic truth is never reached, only approached—if even that.

Around my birth, George Gamow wrote *One Two Three... Infinity*, a tale of universal history from his conception of the evolution of the universal stuff, the ylem, through origins of earth and life, and the role of mathematics in all this. When young, this story of "life, the universe, and everything", had impact on me, as it did on many physicists of my now august age. The great Gamow wrote his concept of the cosmic tale circa 1950, integrating his quite incomplete knowledge then, including predicting a cosmic photon afterglow (CMB, discovered six decades ago) as a follow-on of nucleosynthesis of the light nuclei in the first moments of the instability of space and time we call the Big Bang. We cosmologists are dedicated to developing that origins story in the (cosmic) light of our current precise knowing, living through my five decades as working theoretical physicist, which we now dub as the golden age of cosmology, a marriage of physics theory, exquisite experimentation, and analysis that give humans the audacity to think we can understand Universe from near-beginning to now, and beyond, which encompasses all things. What times George Efstathiou and I, and our many friends on this cosmic path, have lived through. I refer to it as the cosmic "movable feast", with the science developed at our many meetings in centres all over the world and throughout the decades, most often celebrating what we were up to in real human feasts, of gastrophysics, and of ideas of physics and of humans, my hobby if it can be said I have one.

Back to my cosmic history: I was an undergrad at the University of Toronto, in MPC, Math Physics and Chemistry, considered to be the

hardest course. But I did rather well. And at the University of Toronto, I got enamoured with the collective in physics, then as superfluid as macroscopic quantum state, a condensate, with fluctuations superposed, and transport theory how they evolve. I went to Caltech for grad school armed with that view of knowing Universe as a collective, with entropy and phase underlying my thesis on neutrino transport in gravitational collapse. This is the theme behind everything I have done since, as quantum information theory, with life the universe and everything now understood as quantum cosmology playing out, uniting macrocosm and microcosm, which is what the golden age did, expanding what is macro to beyond our horizon, and micro to the subnuclear. And thus, from Caltech to Berkeley, where George and I first worked on massive neutrinos, then on dark matter, with Alex Szalay on both, to Stanford and Cambridge. There, and in my hometown of Toronto, George and I built the (polarized) photon, neutrino, dark matter, and gas transport codes, taking conditions emerging from the early Universe through to observable consequences, what CMB experiments would see, and with a large cast of friends, how the transport would evolve into the interconnected cosmic web of galaxies that we understand so spectacularly now. With deep cosmic mysteries still to solve in our next five decades. Who would have thought in astrophysics, that most international of subjects, that I would return to Toronto for four decades of professorship after Stanford, and play a major role in developing astro in Canada and worldwide through the Canadian Institute for Theoretical Astrophysics and the Canadian Institute for Advanced Research, proudly awarded the Order of Canada and of Ontario, recognizing that role, of mentoring all ages of fellow researchers. And I continue to write my lab books, and integrate my current cosmic knowing into a Gamow-like tale of "life, the universe, and everything".

Geroge Efstathiou

LAUREATE IN ASTRONOMY 2025

‘I would never have anticipated that the calculations that Dick and I had made about 30 years earlier would have been matched so accurately by experiment.’

I was born in North London in 1955 to Greek Cypriot parents. My father came to London from Cyprus in 1949, and my mother came as a 14-year-old with her family in 1951. When I was five years old, my father opened a fish and chip shop, following in the footsteps of many Cypriot immigrants in North London. As a child, the only books in the house were a children's encyclopedia. I read these volumes from cover to cover. I was especially inspired by the articles on science and by pictures of the 200-inch telescope at Mt. Palomar, which was completed in 1949. To this day, I have posters of this telescope in my offices at home and at work as a reminder of why I do astronomy.

At school, I was strongly influenced by a physics teacher, Dick Yarrow, who encouraged me to apply to Oxford University. I won an Exhibition to study Physics at Keble College, but unfortunately, my experience at Oxford was not particularly happy. Coming from a state school and an immigrant background, I felt out of place. I also found the course to be desperately dull.

After Oxford, I began a PhD with a new cosmology group at the University of Durham. Richard Ellis, then a postdoc, was the de facto leader of this fledgling group. I felt much more at home in the North East of England and flourished in an intellectual environment in which I was free to investigate whatever I wanted. I completed several projects, but the main focus of my PhD thesis involved developing a novel computer code to simulate the formation of structure in the Universe.

Following my PhD, I moved to a postdoctoral position at Berkeley. This is where I met Dick Bond. I decided to broaden my research and was on the lookout for new problems. In a phone call, Mark Davis mentioned a recent Russian experiment that claimed a detection of a mass for the electron neutrino of about 30 eV (which turned out to be wrong). I discussed this with Dick, who was working on neutrino interactions in supernovae, and we began to think about the implications of weakly interacting dark matter and the formation of structure in the Universe. This was the start of a really productive collaboration that led to the work recognised by our Shaw Prize.

Although light neutrinos (a form of hot dark matter) did not lead to a viable theory, it was clear that a much heavier, weakly interacting particle (cold dark matter) would provide a better match to observations. In the early 1980s, theorists made a very important advance, showing that quantum fluctuations could be stretched in scale during an inflationary phase in the early Universe to form the structure that we see today. The evolution of such fluctuations at late times depends sensitively on the matter content of the Universe and becomes an important test of the nature of dark matter. Dick and I made detailed investigations of the temperature anisotropies of the cosmic microwave background (CMB) radiation expected in inflationary cold dark matter Universes. At about

the same time, I resurrected the computer code from my PhD thesis and began studying structure formation in cold dark matter Universes with my colleagues Marc Davis (who set me on the path of non-baryonic dark matter), Carlos Frenk, and Simon White.

In 1988, I moved from a junior faculty position at Cambridge to take up the Savilian Chair and became head of the Astrophysics Department at Oxford. Most of my work over the next few years was devoted to studying structure in the Universe. With my PhD students, we constructed a large catalogue of galaxies with the aim of verifying the predictions of the cold dark matter cosmology. However, our results showed evidence for more structure at large scales than expected in this theory. We suggested that this discrepancy could be resolved by including dark energy in addition to dark matter, a proposal that was not well received until observations of distant supernovae by Perlmutter, Riess, Schmidt, and collaborators gave strong evidence for an accelerating Universe. Their pioneering work marks the birth of the ΛCDM cosmology.

Following the discovery of anisotropies of the CMB by the COBE satellite, I became involved with the European Space Agency's Planck Satellite, which launched in 2009. I moved from Oxford back to Cambridge in 1997, and much of my research from 2008 onwards was based on observations of the CMB with Planck. Planck has confirmed the ΛCDM cosmology to unprecedented precision. I would never have anticipated that the calculations that Dick and I had made about 30 years earlier would have been matched so accurately by experiment. The Planck project ended in 2018. Since then, I have been investigating whether there are any discrepancies or hints of new physics beyond ΛCDM, using a range of cosmological probes, including the CMB, weak gravitational lensing, supernovae, and surveys of large-scale structure in the Universe.

The Shaw Prize 2025

Life Science & Medicine

PROFESSOR
BONNIE L BASSLER

Member of the Board of Adjudicators
Chair of the Selection Committee
for the Prize in Life Science and Medicine

Professor Bonnie L Bassler is a Member of the US National Academy of Sciences, the National Academy of Medicine, and the American Academy of Arts and Sciences. She is a Howard Hughes Medical Institute Investigator and the Squibb Professor and Chair of the Department of Molecular Biology at Princeton University. Her research focuses on the molecular mechanisms bacteria use for intercellular communication. This process is called quorum sensing. Professor Bassler's discoveries are paving the way to the development of novel therapies for combating bacteria by disrupting quorum-sensing-mediated communication. She received the Shaw Prize in Life Science and Medicine in 2015. Professor Bassler is a Member of the Royal Society and the American Philosophical Society. She served on the National Science Board from 2010–2016 and was nominated to that position by President Barack Obama. The Board oversees the NSF and prioritises the nation's research and educational activities in science, math and engineering.

Wolfgang Baumeister

For his pioneering development and use of cryogenic-electron tomography (cryo-ET), an imaging technique that enables three-dimensional visualisation of biological samples, including proteins, macromolecular complexes, and cellular compartments as they exist in their natural cellular settings.

Wolfgang Baumeister is awarded the Shaw Prize in Life Science and Medicine for his pioneering and visionary development of cryogenic-electron tomography (cryo-ET). Cryo-ET is an imaging technique that allows reconstruction of high-resolution three-dimensional images of biological samples, including proteins, macromolecular complexes, and cellular compartments as they exist in their natural cellular settings.

Human cells possess billions of proteins and other biocomponents that do the work to keep cells, and thus organisms, alive. Sometimes proteins work alone, sometimes they work together with a few other protein partners, sometimes proteins work in large multi-protein complexes, and frequently, these complexes act with other types of biomolecules including DNA, RNA, and lipid membranes. Scientists have long lists of the individual components in our cells. Often structures of these biological entities exist with every atom and its placement in the protein or multi-protein complex precisely known. However, for the vast majority of these fascinating and important biological entities, our knowledge stems exclusively from studies of the isolated protein or isolated multi-protein complex that has been purified away from all other cellular components. But, in cells, these components cannot and do not function alone. For life to happen, proper interactions between and collective activity among biocomponents are required. Moreover, these interactions must take place in the context of cells that are crowded with billions of other biocomponents.

Baumeister's breakthrough is cryo-ET, a technology that enables the study of proteins and molecular machines in their native contexts, that is, in the intact cell. In cryo-ET, biological samples are rapidly frozen at an extremely low temperature ensuring that the cell or tissue organization is preserved. Next, sequential pictures of the sample are captured as it is slowly rotated (tilted) to acquire the multiple perspectives required to compile its 3-dimensional structure. This revolutionary advance in imaging is important because knowing both the structure and location of macromolecular complexes within cells is crucial for understanding their functions in health and disease. Through dogged persistence and vision, Baumeister overcame major hurdles. For example, cryo-ET required that the most probable identity and orientation of a macromolecule be identified in the large amount of data acquired. Doing so was time-consuming and necessitated informed guess work. To surmount this roadblock, Baumeister developed template matching, a computational method that enables researchers to locate and identify the positions and orientations of macromolecular complexes within crowded cellular environments. Template matching works by comparing known structural templates to the data coming from the cryo-ET analyses. The template matching advance improved the accuracy and the automation of cryo-ET. Another major limitation was that cryo-ET could only be

applied to very small, very thin specimens, such as viruses, bacteria, and yeast. This constraint meant that all the important and fascinating questions regarding the native biology occurring in cells and tissues of higher organisms were precluded from cryo-ET interrogation. In a Herculean feat, Baumeister and his team perfected the use of focused ion beam milling (FIB milling), a term used in manufacturing processes. Factories use rotating cutting tools called milling cutters to shape items from various materials, including metal, plastic, wood, and composites. FIB milling, when applied to cryo-ET, slices away biological material from the outsides of thick samples, thus making the remaining sections thin enough for cryo-ET analysis. Development of FIB milling transformed the field, making previously inaccessible biology amenable to study.

Cryo-ET has now achieved a level of resolution that brings scientists closer to visualizing macromolecules at near-atomic resolution in their natural habitat within cells. Baumeister's advance has launched a new field referred to as "structural biology *in situ*".

Beyond his *tour de force* efforts in method development, Baumeister and his colleagues have demonstrated the power of cryo-ET through their analyses of the 26S proteosome complex, a molecular machine that is required for removal of damaged or unnecessary proteins in cells. Baumeister's *in situ* structural studies of the proteasome have provided new insights into the regulation, location, and dynamics of protein turnover within cells. His structural studies have also elucidated how disruption of proteosome function contributes to human disease. Cryo-ET has also had a major impact in virology, where work by Baumeister and others have provided new understanding of how viruses interact with host cell membranes to drive the required rearrangements of viral coat proteins to permit cell surface attachment and promote entry of viral genomes into infected cells. These studies have provided vital information to guide the development of neutralizing antibodies and vaccines.

In summary, Baumeister has developed and applied methods to reveal the inner workings of cells at an unprecedented, near-atomic level. The power of this technology is transforming our understanding of normal life processes and how they go awry in disease.

Wolfgang Baumeister

LAUREATE IN LIFE SCIENCE & MEDICINE 2025

‘Structural biology *in situ* by cryo-electron tomography now has a firm place in structural cell biology.’

Born on November 22 in Wesseling, near Cologne, my family relocated to Siegen when I was eight years old due to my father's career as an engineer with the German railway system. My early education was at a grammar school with a focus on classical languages, where the natural sciences were considered of minor importance. My academic trajectory was uninspired until a motivating biology teacher suggested a project in plant ecology. I undertook a three-year study on the succession of plant communities following periodic deforestation, a traditional practice linked to local iron processing. This work, pursued with great enthusiasm, was published as a booklet upon my graduation and received several accolades, including winning the German Science Fair ('Jugend forscht'). The success of this project solidified my conviction to pursue a scientific career in biology, a path my parents supported despite their doubts that it would ever earn me a living.

I enrolled at the University of Münster in 1966, where I took foundational courses in physics, chemistry, and biology. After a year, I transferred to the University of Bonn. It was there that my fascination with structural biology began when I discovered an abandoned electron microscope at the Institute of Agricultural Botany. I took the initiative to put it back into operation and taught myself the art of specimen preparation techniques. By the time I completed my diploma thesis, I recognized the need for professional training in EM-based structural studies to move beyond an amateur level. This led me to apply for a position at the Institute of Biophysics and Electron Microscopy at the University of Düsseldorf, under the supervision of Helmut Ruska. Helmut Ruska was a pioneer in applying electron microscopy to the biomedical sciences, and he was the first to visualize viruses and bacteria. He was the younger brother of Ernst Ruska, who received the 1986 Nobel Prize in Physics for his foundational work in developing the first electron microscope.

At the time I joined the Ruska laboratory, transmission electron microscopes had, in principle, reached a resolution allowing to image single heavy atoms. My assigned PhD task was to explore the use of heavy-atom labels for studying membrane topology. I began by preparing synthetic lipid layers, but these proved too unstable under the electron beam. I eventually succeeded in imaging an unusually radiation-resistant organometallic compound. Even though this work sailed easily into a top-tier journal, it had no lasting impact. It became clear that this avenue of research was a dead end, necessitating a change in direction.

The emerging field of electron crystallography offered a promising alternative, particularly inspired by work on the two-dimensional crystals of bacteriorhodopsin. This method circumvents the problem of radiation damage by averaging information from many identical copies within a repetitive structure, enabling the study of underexposed samples. My

group successfully applied this approach to bacterial surface layers and refined image processing procedures to overcome the limitations of crystal imperfections. In 1982, this work led to an appointment at the Max-Planck-Institute of Biochemistry in Martinsried, where I succeeded Walter Hoppe, an X-ray crystallographer of remarkable originality and theoretical ability who had transitioned to electron microscopy.

In 1989, my laboratory began investigating the 20S proteasome, a large protein complex whose structure and subunit composition were then highly controversial. Our search for a more tractable model was successful; we identified a particle similar to the human proteasome in the archaeon *Thermoplasma acidophilum*. This discovery was instrumental in elucidating the structure and enzymatic mechanism of this critical protein degradation machine. We obtained a 3D model via cryo-EM single-particle analysis, followed by a high-resolution structure using X-ray crystallography. Combined with site-directed mutagenesis, this work revealed the proteasome's long enigmatic active site, paving the way for the development of inhibitors, one of which became a potent drug for treating multiple myeloma.

The next major challenge was to understand the proteasome in its functional state, associated with regulatory complexes to form the multisubunit 26S holocomplex. The sheer complexity, dynamics, and lability of this assembly made it a daunting target for structural studies. This led us to believe that some of its mysteries could be better addressed by studying it *in situ*, within its functional cellular environment. Although electron tomography was a conceptual option, a great deal of skepticism existed amongst the practitioners of electron microscopy regarding its application to radiation-sensitive biological material embedded in vitreous ice.

The advent of computer-controlled microscopes and large-area CCD cameras in the late 1980s provided an opportunity to automate tomographic data acquisition. This automation was key to keeping the cumulative electron dose within tolerable limits. A turning point came in 2002 with our publication of tomograms from the periphery of a *Dictyostelium* cell, which clearly visualized the actin cytoskeleton with ribosomes and proteasomes nestled within. From there to where we are now has been a long journey. Many obstacles, from sample preparation to improved schemes of data acquisition and data processing, had to be overcome. Now, it is gratifying to see how many labs across the world have adopted this technology. Structural biology *in situ* by cryo-electron tomography now has a firm place in structural cell biology.

The Shaw Prize 2025

Mathematical Sciences

PROFESSOR HÉLÈNE ESNAULT

Member of the Board of Adjudicators
Chair of the Selection Committee
for the Prize in Mathematical Sciences

Professor Hélène Esnault is a French and German mathematician working in Algebraic-Arithmetic Geometry. She studied at the École Normale Supérieure, got a PhD and a Doctorat d'État from the University Paris VII, and a Habilitation from the University of Bonn. She held a Chair at the University of Essen (1990–2012), then became an Einstein Professor at the Freie Universität Berlin, Germany until 2019. She is a part-time Professor at the University of Copenhagen and an Associate Faculty at Harvard University.

She received the Paul Doisteau–Emile Blutet Prize of the Academy of Sciences in Paris (2001), the Leibniz Prize of the German Research Council DFG (2003), an ERC Advanced Grant (2009), a Chaire d'Excellence de la Fondation Mathématique de Paris (2011), the Cantor Medal (2019), honorary Doctorate degrees of the Vietnam Academy of Sciences and Technology (2009), University of Rennes (2013), and the University of Chicago (2023). She was an invited speaker at the ICM Beijing 2002 and the ECM Krakow 2012. She was a Chern Professor at MSRI (Berkeley) (2019), a guest Professor at the Institute for Advanced Studies, Princeton (2019/20).

She is a Member of the Academies of North Rhine-Westphalia since 2005, of the German National Academy (Leopoldina) since 2008, of Berlin–Brandenburg since 2010, of the European Academy (Academia Europaea) since 2014, of the Royal Danish Academy since 2024.

Kenji Fukaya

For his pioneering work on symplectic geometry, especially for envisioning the existence of a category—nowadays called the Fukaya category—consisting of Lagrangians on a symplectic manifold, for leading the monumental task of constructing it, and for his subsequent ground-breaking and impactful contributions to symplectic topology, mirror symmetry, and gauge theory.

The Shaw Prize in Mathematical Sciences 2025 is awarded to Kenji Fukaya, for his pioneering work on symplectic geometry, especially, for envisioning the existence of a category—nowadays called the Fukaya category—consisting of Lagrangians on a symplectic manifold, for leading the monumental task of constructing it, and for his subsequent groundbreaking and impactful contributions to symplectic topology, mirror symmetry, and gauge theory.

Fukaya was born in 1959 in Nagoya and grew up in Yokohama, Japan. He received his whole education in Japan, was a Professor at Kyoto University from 1994 to 2013, and was a permanent member of the Simons Center of Geometry and Physics, before moving recently to Beijing. He is currently a Professor at Beijing Institute of Mathematical Sciences and Applications (BIMSA) and Yau Mathematical Sciences Center (YMSC) of the Tsinghua University, China.

In classical mechanics, the time evolution of a physical system moves continuously along a trajectory which is described in terms of a Hamiltonian function, named after the 19th century Irish astronomer, mathematician, physicist and poet William Rowan Hamilton, who, aside of classical and contemporary European languages, mastered Persian, Arabic, Hindustani, Sanskrit, Marathi, Malay...

Arnold, born before WWII in Odessa, then in the Soviet Union, proposed in the 60s in Moscow conjectures in order to study the lower bound of the number of periodic solutions of the flow when the Hamiltonian is time-periodic. In modern mathematics, phase spaces are generalised to symplectic manifolds. A refined conjecture concerns a lower bound of the number of points of intersections of two Lagrangian submanifolds on a symplectic manifold.

In the 1980s, Floer, born in the mid-50s in Germany, initiated, before tragically committing suicide at the beginning of the 90s, the Lagrangian Floer theory as an approach to tackling Arnold's conjecture based on the idea of infinite-dimensional Morse theory. Under some assumptions on a symplectic manifold and Lagrangian submanifolds, Floer constructed the Floer homology from the space of solutions to a nonlinear partial differential equation, called the moduli space, and he applied it to solve the conjecture of Arnold in some special cases. However, the general case remained difficult because the moduli space may be highly complicated and singular without these assumptions.

Fukaya, in Kyoto, with his collaborators Oh, Ohta, and Ono, established and significantly extended the Lagrangian Floer theory, which is one of his main achievements.

Around 1993, based on his idea of Morse homotopy, Fukaya discovered a higher algebraic structure in the complicated moduli space, and proposed a magnificent vision assigning an A-infinity category to

any symplectic manifold, called nowadays the Fukaya category.

At that time, much of what was needed to realize his vision was missing. One of the main difficulties was dealing with the singularities of the moduli space. Fukaya introduced and developed the theory of Kuranishi structures, initially in collaboration with Ono and later with Oh, Ohta, and Ono, establishing a way to attach a virtual fundamental chain to a singular space equipped with a Kuranishi structure, and to build the intersection theory of the chains. They overcame many more difficulties one by one. This achievement is a *tour de force*.

The Fukaya category, besides its internal beauty, is a highly efficient tool in symplectic topology. Indeed, Fukaya and his coauthors obtained new results on the non-displaceability of certain Lagrangian submanifolds and constructed new quasi-isomorphisms on the groups of Hamiltonian diffeomorphisms of some symplectic manifolds.

The Fukaya category has attracted the interest of many outstanding mathematicians in various fields. One significant reason is Kontsevich's homological mirror symmetry conjecture formulated as an equivalence between the Fukaya category of a Calabi–Yau manifold and the derived category of coherent sheaves on its mirror manifold. Fukaya has made transformative contributions to the development of mirror symmetry notably by proposing family Floer homology.

Earlier on, Fukaya made essential contributions to Riemannian geometry and gauge theory, in his single authored works and in collaborations with Cheeger and Gromov and with Yamaguchi.

Recently, Fukaya, in collaboration with Daemi and Lipyanskiy, made spectacular progress on the Atiyah–Floer conjecture concerning Floer homology on 3-manifolds based on the Lagrangian Floer theory, which was actually one of his original motivations for introducing the Fukaya category.

Kenji Fukaya

LAUREATE IN MATHEMATICAL SCIENCES 2025

‘I am very happy to say that there are still so many things to be realized and to be developed that I can enjoy working on them for another 30 years.’

I was born in Nagoya, Japan, in 1959, and soon moved to Yokohama, Japan, and grew up there. My father liked books, and so in my house there were always many books. Naturally, I liked reading from a very early age. While I was in elementary school and middle school, I spent a lot of time reading books of many kinds, including science books. I read a lot about Physics and Astronomy. After going to high school, Mathematics became my favorite field. I did not ask people to guide me on what books to read. Instead, I went to bookstores, looked at the prefaces of books, and tried to guess the contents of the books (high school student can buy only a few of them). When I passed the entrance examination to University, I was so happy that I would now have plenty of time to read books. I started reading Mathematics. In the first few months, I read van der Waerden on (abstract) algebra and Kelley on general topology. I continued algebraic topology, algebraic geometry and differential topology (I think my guess at finding books to read was not so bad, as I found van der Waerden and Kelley without instructions). When I was in my third year and became an undergraduate student in the Mathematics department, on the first day, I went to the library of the department and was very happy to find many Math Journals that I wanted to read but could not access.

At the beginning of my graduate course, it was hard to decide what subject to study. One day, Yamaguchi (who would later become my collaborator) came to give a seminar talk on Riemannian geometry. He explained an interesting paper by Gromov. After his talk, Yano (one of the members of a topologist group at Tokyo University) asked me whether I was interested in this topic and lent me several preprints. In the next student seminar, I explained one of the preprints he gave me. My Master's thesis was on related topics. Soon after, my research area became "collapsing Riemannian manifold", a subject developed much by Gromov and Cheeger. After writing several papers on this topic (some with T Yamaguchi), I had an opportunity to stay at the Max Planck Institute for Mathematics in Bonn. It was a great place for me. There was nothing to do there other than doing research. So, I decided to read papers and books on new subjects. One of them is gauge theory. I spent a lot of time just reading about gauge theory. One important event at the Max Planck in Bonn was a conference called Arbeitstage. In that year (1986), there was a talk by Floer on Arnold conjecture and Floer homology. This would later become my research area. However, I did not understand his talk at all (actually, his talk was also related to gauge theory, but I was not smart enough to understand such a relation).

A few years later, I spent a year at the University of Maryland (invited by K Grove). I was still studying Riemannian Geometry and wrote several papers in Maryland. At the same time, I wrote my first paper on gauge theory.

After I came back from Maryland, I was able to communicate with many mathematicians and a few physicists who were interested in novel communication between mathematics and elementary particle physics. For example, conformal field theory was one of the topics they were interested in. During those days, many things were happening in that area. Seiberg-Witten came and showed a new method to apply gauge theory to topology. Mirror symmetry was discovered. A relation between string theory and Gromov–Floer theory (that is, theory of pseudo-holomorphic curves in symplectic geometry) was found. My main interest in Math was still in gauge theory. I was interested in gauge theory Floer homology (which is defined for 3-dimensional manifold) and its version for 3-manifold with boundary. In a conference at the University of Warwick in 1992, Donaldson proposed that it was related to Lagrangian Floer homology (in symplectic geometry). I thought about it for several months and found an idea that gauge theory Floer homology of 3-manifold with boundary should be a module over certain category defined by Lagrangian Floer theory. A few months later, I gave a talk on it at a conference in Japan called the Taniguchi conference. Kontsevich was among the audience and soon found that the category I mentioned was related to Mirror symmetry. It was 1993, and that was more than 30 years ago. Those programs were very successfully realized or on the way to being realized, I think. Together with many collaborators (Oh, Ohta, Ono and etc.), a category associated with a symplectic manifold (using Lagrangian Floer theory) is now constructed as rigorous Mathematics and is applied for various purposes, including Mirror symmetry. To realize it, we needed to understand the singularity of the moduli space of pseudo-holomorphic curves. We developed a method called virtual fundamental chain for this purpose.

The project to realize its relation to gauge theory Floer homology was stopped for a while (during 1996-2017) for me, but I have now come back to it together with young collaborators Daemi and Lipyanskiy. I am very happy to say that there are still so many things to be realized and to be developed that I can enjoy working on them for another 30 years.

Organisation Preparatory Committee 2003

FIRST ROW, FROM RIGHT TO LEFT

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Professor Chen-Ning Yang Chairman, Board of Adjudicators	
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Professor Yue-Man Yeung Chairman	Director, Hong Kong Institute of Asia-Pacific Studies, The Chinese University of Hong Kong
The late Mrs Mona Shaw (1934–2017) Member	Chairperson, The Shaw Prize Foundation

TITLES OF MEMBERS WERE THEN AS OF JULY 2003

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Professor James Peebles	Laureate in Astronomy
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Professor Yuet-Wai Kan	Laureate in Life Science and Medicine
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FROM RIGHT TO LEFT

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Professor Andrew Wiles	Laureate in Mathematical Sciences

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FROM RIGHT TO LEFT

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FROM RIGHT TO LEFT

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Professor Franz-Ulrich Hartl	Laureate in Life Science and Medicine
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Professor Jane Luu	Laureate in Astronomy
Professor Maxim Kontsevich	Laureate in Mathematical Sciences

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Professor Michael Rosbash	Laureate in Life Science and Medicine
Professor Jeffery C Hall	Laureate in Life Science and Medicine
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Professor Steven A Balbus	Laureate in Astronomy
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FROM RIGHT TO LEFT

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Professor Shaun Cole	Laureate in Astronomy
Professor John A Peacock	Laureate in Astronomy
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Professor Peter Walter	Laureate in Life Science and Medicine
Professor George Lusztig	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

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Professor E Peter Greenberg	Laureate in Life Science and Medicine
Mr C Y Leung	The then Chief Executive of HKSAR
Professor Gerd Faltings	Laureate in Mathematical Sciences
Professor Henryk Iwaniec	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

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Professor Rainer Weiss	Laureate in Astronomy
Mr C Y Leung	The then Chief Executive of HKSAR
Professor Adrian P Bird	Laureate in Life Science and Medicine
Professor Huda Y Zoghbi	Laureate in Life Science and Medicine
Professor Nigel Hitchin	Laureate in Mathematical Sciences

REMARKS

The late Professor Ronald W P Drever (1931–2017)	Laureate in Astronomy was unable to participate in the ceremony

FROM RIGHT TO LEFT

Professor Simon D M White	Laureate in Astronomy
Professor Ronald D Vale	Laureate in Life Science and Medicine
Mrs Carrie Lam Cheng Yuet-ngor	The then Chief Executive of HKSAR
Professor János Kollár	Laureate in Mathematical Sciences
Professor Claire Voisin	Laureate in Mathematical Sciences

REMARKS

The late Professor Ian R Gibbons (1931–2018)	Laureate in Life Science and Medicine was unable to participate in the ceremony

FROM RIGHT TO LEFT

Dr Jean-Loup Puget	Laureate in Astronomy
Mrs Carrie Lam Cheng Yuet-ngor	The then Chief Executive of HKSAR
Professor Mary-Claire King	Laureate in Life Science and Medicine
Professor Luis A Caffarelli	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

The late Professor Edward C Stone (1936–2024)	Laureate in Astronomy
Mrs Carrie Lam Cheng Yuet-ngor	The then Chief Executive of HKSAR
Professor Maria Jasin	Laureate in Life Science and Medicine
Dr Michel Talagrand	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

Professor Roger D Blandford	Laureate in Astronomy
Professor Gero Miesenböck	Laureate in Life Science and Medicine
Professor Peter Hegemann	Laureate in Life Science and Medicine
Professor Georg Nagel	Laureate in Life Science and Medicine
Professor Alexander Beilinson	Laureate in Mathematical Sciences
Professor David Kazhdan	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

Professor Victoria M Kaspi	Laureate in Astronomy
Professor Chryssa Kouveliotou	Laureate in Astronomy
Professor Scott D Emr	Laureate in Life Science and Medicine
Professor Jean-Michel Bismut	Laureate in Mathematical Sciences
Professor Jeff Cheeger	Laureate in Mathematical Sciences

FROM RIGHT TO LEFT

Professor Lennart Lindegren	Laureate in Astronomy
Professor Michael Perryman	Laureate in Astronomy
Dr Paul A Negulescu	Laureate in Life Science and Medicine
Professor Michael J Welsh	Laureate in Life Science and Medicine
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The Shaw Prize Council
Founding Members

MRS MONA SHAW (1934–2017)

Mrs Mona Shaw uplifted her husband's idea of creating an award to honour and highlight international scientific achievements and together with Mr Run Run Shaw and esteemed academics, brought the concept to fruition with the founding of the Shaw Prize. Advancing the Shaw focus on education, and in the firm belief that the sharing of knowledge is key to discovery, the Prize aims to inform the world's budding scientists of major breakthroughs in diverse scientific fields, and through widely disseminated Shaw Laureate lectures, inspire them to be future trailblazers. Herself a highly respected leader in business, advancing the arts and philanthropy, Mrs Mona Shaw orchestrated the format of the annual Awards Ceremony and her remembered presence is warmly cherished.

PROFESSOR MA LIN (1924–2017)

A founding member of the Shaw Prize, Professor Ma's ideals have indelibly marked the Prize, and together with his legacy of love for the creation and application of knowledge, continue to fuel its advancement. An internationally acclaimed biochemist and gifted leader, on his watch the Chinese University of Hong Kong established the Department of Biochemistry, the Faculty of Medicine, and later the founding of Shaw College. As a scientist and educator his expertise melded well with Mr Run Run Shaw's quest to inspire scientific research and expand discovery. The founding of the Shaw Prize embodied their shared vision of societal progress through the advancement of knowledge.

PROFESSOR CHEN-NING YANG

Professor Chen-Ning Yang, an eminent physicist, was Albert Einstein Professor of Physics at the State University of New York at Stony Brook until his retirement in 1999. He has been Distinguished Professor-at-large at The Chinese University of Hong Kong since 1986 and Professor at Tsinghua University, Beijing, since 1998.

Professor Yang has received many awards: Nobel Prize in Physics (1957), Rumford Prize (1980), US National Medal of Science (1986), Benjamin Franklin Medal (1993), Bower Award (1994) and King Faisal Prize (2001). He is a Member of the Chinese Academy of Sciences, the Academia Sinica in Taiwan, the US Academy of Sciences, the Royal Society of London, the Russian Academy of Sciences and the Japan Academy.

Since receiving his PhD from the University of Chicago in 1948, he has made great impacts in both abstract theory and phenomenological analysis in modern physics.

The Shaw Prize Council

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PROFESSOR KENNETH YOUNG

Chair of the Council
Vice Chair of the Board of Adjudicators

Professor Kenneth Young is a theoretical physicist, and is Emeritus Professor of Physics at The Chinese University of Hong Kong. He pursued studies at the California Institute of Technology, USA, 1965–1972, and obtained a BS in Physics (1969) and a PhD in Physics and Mathematics (1972). He joined The Chinese University of Hong Kong in 1973, where he has held the position of Chairman, Department of Physics and later Dean, Faculty of Science, Dean of the Graduate School and Pro-Vice-Chancellor.

He was elected a Fellow of the American Physical Society in 1999 and a Member of the International Eurasian Academy of Sciences in 2004. He was also a Member of the University Grants Committee, HKSAR and Chairman of its Research Grants Council. He served as Secretary and then Vice-President of the Association of Asia Pacific Physical Societies. He is a Director of the Council of the Hong Kong Laureate Forum. His research interests include elementary particles, field theory, high energy phenomenology, dissipative systems and especially their eigenfunction representation and application to optics, gravitational waves and other open systems.

DR WAI-MAN CHAN RAYMOND, JP

Dr Raymond Chan joined the Shaw Brothers (Hong Kong) Ltd in January 1994. He was invited to join the Preparatory Committee of the Shaw Prize in 2002. Since 2012, he has been a Member on the Board of Advisors of Sir Run Run Shaw Charitable Trust. In 2017, he was successively appointed Managing Director of the Shaw Group of Companies, Chairman of the Shaw Foundation and the Shaw Prize Foundation.

Dr Chan studied in the United Kingdom gaining BA (Hons) and B Arch (Hons) and became a Member of the Royal Institute of British Architects and Hong Kong Institute of Architects. He is also a registered architect under the Architect Registration Board in both UK and Hong Kong. In 2022, he received an Honorary Degree of Doctor of Laws from the University of Liverpool, UK.

He is on the Board of Trustees of Shaw College, The Chinese University of Hong Kong, an Honorary Trustee of Peking University and Trustee of Zhejiang University. Dr Chan is also a Member of the Council of the Hong Kong Laureate Forum. He was awarded Honorary Fellowship by The Chinese University of Hong Kong, The Hong Kong University of Science and Technology and The University of Hong Kong.

PROFESSOR MING-CHUNG CHU

Professor Ming-Chung Chu is Choh-Ming Li Professor of Physics, The Chinese University of Hong Kong. He obtained his BSc and PhD in Physics at the California Institute of Technology (Caltech) in 1983 and 1987, respectively. He held research positions at Massachusetts Institute of Technology (MIT) and Caltech before joining the Chinese University of Hong Kong (CUHK) in 1995. Professor Chu's research interests include astrophysics, cosmology, and particle physics. He was one of the co-founders of the Daya Bay Reactor Neutrino Experiment, which in 2012 discovered a new kind of neutrino oscillation that had important implications for cosmology and particle physics. The Daya Bay Collaboration was awarded the Breakthrough Prize in Fundamental Physics 2016 and the 2023 European Physical Society High Energy Particle Physics Prize for the discovery. Professor Chu is the leader of the Hong Kong Cluster of the ATLAS Experiment at the Large Hadron Collider, CERN, studying the fundamental structures of matter. Professor Chu was elected Fellow of the American Physical Society in 2018 and Fellow of the Hong Kong Physical Society in 2019.

PROFESSOR REINHARD GENZEL

Chair of the Board of Adjudicators

Professor Reinhard Genzel, born in 1952 in Germany, is the Director at the Max Planck Institute for Extraterrestrial Physics, Garching, Germany, Honorary Professor at the Ludwig Maximilian University, Munich since 1988 and Professor in the Graduate School, UC Berkeley since 2017.

He received his PhD from the University of Bonn in 1978. He was a Postdoctoral Fellow at Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts, an Associate Professor of Physics and Associate Research Astronomer at Space Sciences Laboratory and a Full Professor of Physics at UC Berkeley.

Professor Genzel has received many awards, including Balzan Prize (2003), Stern-Gerlach Medal (2003), Petrie Prize (2005), The Shaw Prize in Astronomy (2008), Jansky Prize (2010), Karl Schwarzschild Medal (2011), Crafoord Prize in Astronomy (2012), Tycho Brahe Prize (2012), Herschel Medal (2014), Great Cross of Merit (with Star) of Germany (2014), Harvey Prize in Science and Technology (2014) and the Bavarian Maximilian Order for Science and Art (2021). In 2020, he received the Nobel Prize in Physics, jointly with Andrea Ghez, for the discovery of a supermassive compact object at the centre of our galaxy.

PROFESSOR
YUET-WAI KAN

Professor Yuet-Wai Kan, the Louis K Diamond Professor of Hematology at the University of California, San Francisco, USA, is a world-leading expert on the use of gene and cell therapy to treat sickle cell anemia and thalassemia. Professor Kan was born in Hong Kong, graduated from the Faculty of Medicine at the University of Hong Kong and trained at Queen Mary Hospital, Hong Kong, before going to the United States for further studies.

Professor Kan's contributions to DNA diagnosis and his discovery of human DNA polymorphism have found wide application in genetics and human diseases. For his work, he has received many national and international awards including the Albert Lasker Clinical Medical Research Award, the Gairdner Foundation International Award and the Shaw Prize. He is the first Chinese elected to the Royal Society, London, and is a Member of the US National Academy of Sciences, Academia Sinica, the Third World Academy of Sciences and the Chinese Academy of Sciences. He has received honorary degrees from The University of Caglieri, Italy, The Chinese University of Hong Kong, The University of Hong Kong and The Hong Kong Metropolitan University (formerly the Open University of Hong Kong).

PROFESSOR
ZHI-QUAN LUO

Professor Zhi-Quan Luo received his BS in Applied Mathematics from Peking University, China in 1984 and obtained a PhD in Operations Research from MIT in 1989. From 1989 to 2003, he was a faculty member in the Department of Electrical and Computer Engineering at McMaster University, Canada, where he also held a Tier-1 Canada Research Chair in Information Processing from 2001 to 2003. He then joined the University of Minnesota as a Full Professor and served as the endowed ADC Chair in Digital Technology. Currently, he is the Vice President (Academic) at The Chinese University of Hong Kong, Shenzhen and the Director of the Shenzhen Research Institute of Big Data (SRIBD).

A Fellow of SIAM and IEEE, Professor Luo has made important contributions to both applied mathematics and information science. He has received numerous awards, including four Best Paper Awards from the IEEE Signal Processing Society, a Best Paper Award from EUSIPCO, the 2020 ICCM Best Paper Award, the Farkas Prize from INFORMS, the Paul Y. Tseng Memorial Lectureship Prize, and the First CSIAM Wang Xuan Applied Mathematics Prize in 2022. He served as the Editor-in-Chief of IEEE Transactions on Signal Processing from 2012 to 2014. Professor Luo was elected a Fellow of the Royal Society of Canada in 2014 and a Foreign Member of the Chinese Academy of Engineering in 2021.

PROFESSOR JUSTIN WU

Professor Justin Wu is the Associate Dean (Health Systems) of Faculty of Medicine, The Chinese University of Hong Kong (CUHK). He has academic focus in functional gastrointestinal disorders and gastroesophageal reflux disease with more than 38,000 citations. He is serving as academic leader in many international professional organisations, which include the President of Asian Pacific Digestive Week Federation and Past President of Asian Pacific Association of Gastroenterology.

In medical education, Professor Wu is the founding director of Asia's first "Global Physician-Leadership Stream" (GPS) of MBChB programme, and the founding director of Hong Kong Institute of Integrative Medicine in CUHK pioneering the cooperation between Western and Chinese medicine in the healthcare system. He is an eminent teacher with numerous teaching awards of medical education, which include Vice-Chancellor Exemplary Teaching Award, Master Teacher, and Teacher of the Year Awards in CUHK Medicine.

The Shaw Prize Council

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PROFESSOR
WAI-YEE CHAN

Professor Wai-Yee Chan is Professor of Biomedical Sciences and Director of the Institute for Tissue Engineering and Regenerative Medicine, The Chinese University of Hong Kong (CUHK). Professor Chan obtained his BSc (First Class Honours) in Chemistry from CUHK in 1974 and PhD in Biochemistry from the University of Florida, Gainesville, Florida, USA in 1977. Prior to joining CUHK in June of 2009, he was Professor of Pediatrics, Georgetown University Medical Center, Washington, DC, and Head and Principal Investigator, Section on Developmental Genomics, Eunice Kennedy Shriver National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland, USA.

His expertise is in developmental genomics and molecular genetics of endocrine disorders. He received the 1988 Merrick Award for Outstanding Biomedical Research and the 2008 Presidential Award from the Association of Chinese Geneticists in America. He serves on the editorial boards of a number of international scientific journals and on review panels of regional and international research funding agencies.

PROFESSOR
PAK-CHUNG CHING

Professor Pak-Chung Ching is Director of Shun Hing Institute of Advanced Engineering and Research Professor of Electronic Engineering of The Chinese University of Hong Kong. He received his Bachelor in Engineering (First Class Honours) and PhD from the University of Liverpool, UK, in 1977 and 1981 respectively. Professor Ching is a Fellow of IEEE, IET, HKIE and HKAES. He was Chairman of the Veterinary Surgeons Board of Hong Kong (2012–2023) and Chairman of the Board of Directors of the Nano and Advanced Materials Institute (2018–2023). Professor Ching was awarded the IEEE Third Millennium Award (2000) and the Bronze Bauhinia Star (2010) and Silver Bauhinia Star (2017) of the HKSAR; he was admitted to the HKIE Hall of Fame (2010). His research interests include adaptive digital signal processing, time delay estimation and target localization, blind signal estimation and separation, automatic speech recognition, speaker identification/verification and speech synthesis, and advanced signal processing techniques for wireless communications.

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Professor Scott D Tremaine	Chair of the Selection Committee in Astronomy Emeritus Professor, Department of Astrophysical Sciences, Princeton University and Institute for Advanced Study, Princeton, USA, and Professor, University of Toronto, Canada
Professor Bonnie L Bassler	Chair of the Selection Committee in Life Science and Medicine HHMI Investigator and Squibb Professor and Chair, Department of Molecular Biology, Princeton University, USA
Professor Hélène Esnault	Chair of the Selection Committee in Mathematical Sciences Einstein Professor of Mathematics, Emeritus, Mathematisches Institut, Freie Universität Berlin, Germany

The Shaw Prize
Selection Committees

ASTRONOMY SELECTION COMMITTEE

Professor Roger Blandford	Luke Blossom Professor, School of Humanities and Sciences and Professor of Physics and of Particle Physics and Astrophysics, Stanford University, USA
Professor Gilles Chabrier	Professor, Centre de Recherche Astrophysique de Lyon, Ecole Normale Supérieure de Lyon, France and Professor of Astronomy, University of Exeter, UK
Professor You-Hua Chu	Professor Emerita, Department of Astronomy, University of Illinois at Urbana-Champaign, USA
Professor Eiichiro Komatsu	Director, Department of Physical Cosmology, Max Planck Institute for Astrophysics, Germany

LIFE SCIENCE AND MEDICINE SELECTION COMMITTEE

Professor Michael N Hall	Professor, Biozentrum, University of Basel, and Distinguished Scientist, Institute of Human Biology, Hoffmann-La Roche, Basel, Switzerland
Professor Helen H Hobbs	Professor, Internal Medicine and Molecular Genetics, University of Texas Southwestern Medical Center, USA
Professor David Julius	Chair and Professor, Department of Physiology, School of Medicine, University of California San Francisco, USA
Professor Dennis YM Lo	Vice-Chancellor and President, Li Ka Shing Professor of Medicine and Professor of Chemical Pathology, The Chinese University of Hong Kong, Hong Kong
Professor Joan A Steitz	Sterling Professor of Molecular Biophysics and Biochemistry, School of Medicine, Yale University, USA
Professor Fiona M Watt	Professor of Regenerative Medicine and Director of Centre for Stem Cells & Regenerative Medicine, King's College London, UK

MATHEMATICAL SCIENCES SELECTION COMMITTEE

Professor Carlos Kenig	Louis Block Distinguished Service Professor, Department of Mathematics, University of Chicago, USA
Professor Chandrashekhar Khare	Professor and Chair, Department of Mathematics, University of California Los Angeles, USA
Professor Takuro Mochizuki	Professor, Research Institute for Mathematical Sciences, Kyoto University, Japan
Professor Ngaiming Mok	Edmund and Peggy Tse Professor in Mathematics, Chair of Mathematics and Director of the Institute of Mathematical Research, The University of Hong Kong, Hong Kong

PROFESSOR ROGER BLANDFORD

Astronomy Committee

Professor Roger Blandford took his BA, MA and PhD degrees at Cambridge University. Following postdoctoral research at Cambridge, Princeton and Berkeley he took up a faculty position at Caltech in 1976 becoming the Tolman Professor in 1989. In 2003, he became the first Director of the Kavli Institute for Particle Astrophysics and Cosmology at Stanford and is currently the Director of the Simons Collaboration on Extreme Electrodynamics of Compact Sources. With Kip Thorne he co-authored Modern Classical Physics. His research interests include compact sources, cosmic rays, cosmology, and astrobiology. He is a Fellow of the Royal Society, the American Academy of Arts and Sciences, the American Physical Society and a Member of the National Academy of Sciences. He chaired the 2010 Decadal Survey of Astronomy and Astrophysics. He was awarded the 1998 AAS Heineman Prize, the 2013 RAS Gold Medal, the 2016 Crafoord Prize for Astronomy and the 2020 Shaw Prize for Astronomy.

PROFESSOR GILLES CHABRIER

Astronomy Committee

Professor Gilles Chabrier graduated in theoretical physics. He did his PhD at the International Center for Theoretical Physics, in Trieste, Italy, and in Paris. He switched to astrophysics as a postdoctoral fellow at the University of Rochester, USA. He is the Foundator and the Head of the astrophysics group of Ecole Normale Supérieure de Lyon, France, and a professor at the University of Exeter, UK.

Professor Chabrier received several national and international awards, Johann Wempe Prize (2004), Silver Medal of CNRS (2006), Grand Prix Jean Ricard of the French Physical Society (2010), Eddington Medal of the Royal Astronomical Society (2011), Grand Prix Ampère of the Académie des Sciences (2014), Fred Hoyle Medal and Prize of the Institute of Physics (IOP) (2019) and Gold Medal of the Royal Astronomical Society (2024). He has been elected Fellow of the Institute of Physics (FInstP).

His research ranges from dense matter physics to stellar and planetary physics, star formation and galactic astronomy.

PROFESSOR YOU-HUA CHU

Astronomy Committee

Professor You-Hua Chu received her PhD in Astronomy from the University of California at Berkeley, USA. She was a Professor in the Astronomy Department of the University of Illinois, USA, and was the Department Chair in 2005–2011. In 2014, she moved to Taiwan and was the Director of the Institute of Astronomy and Astrophysics, Academia Sinica (ASIAA) until 2020. She is currently a Chair Research Fellow of the National Sun Yat-sen University, a Distinguished Visiting Scholar at ASIAA and a Professor Emerita of the University of Illinois.

She was the President of IAU Division VI (2009–2012), the President of the Astronomical Society of the Republic of China (ASROC, 2014–2020). She is a Fellow of the American Astronomical Society, and a Fellow of the Physical Society of Taiwan. She received the Heaven Quest Award from the ASROC in 2021, NAOJ Director General's Award in Engineering and Development Category in 2021, and R M Petrie Prize from the Canadian Astronomical Society in 2023.

Her research is in multi-wavelength observations of stellar energy feedback and interactions with the interstellar medium, using the Magellanic Clouds as an astrophysical laboratory.

PROFESSOR EIICHIRO KOMATSU

Astronomy Committee

Professor Eiichiro Komatsu uses theoretical physics and observational data to study the origin, evolution, and constituents of our Universe. He has been Director of the Department of Physical Cosmology at the Max Planck Institute for Astrophysics in Garching, Germany, since 2012. Prior to this he was a postdoctoral fellow at Princeton University and a professor in the Department of Astronomy and Director of Texas Cosmology Center at the University of Texas at Austin. He obtained his PhD from Tohoku University in Sendai, Japan, in 2001.

He is a Fellow of American Physical Society. He received awards for his work including Alfred P Sloan Fellow, the Nishinomiya-Yukawa Memorial Prize, the Gruber Cosmology Prize, the Lancelot M Berkeley Prize of the American Astronomical Society, the Chushiro Hayashi Prize of the Astronomical Society of Japan, the Breakthrough Prize in Fundamental Physics, the Inoue Prize for Science, and the Nishina Memorial Prize.

His scientific achievements include the most stringent test of the physics of the very early Universe known as “cosmic inflation”, innovative explorations of dark matter, dark energy and neutrinos in cosmology, and astrophysics of galaxy clusters.

PROFESSOR MICHAEL N HALL

Life Science and
Medicine Committee

Professor Michael N Hall received his PhD from Harvard University and was a postdoctoral fellow at the Pasteur Institute, France, and the University of California, San Francisco. He joined the Biozentrum of the University of Basel, Switzerland, in 1987 where he is currently Professor and former Chair of Biochemistry. Since 2023, he is also a Distinguished Scientist at the Institute of Human Biology of Hoffmann-La Roche in Basel. Professor Hall is a pioneer in the fields of mTOR signaling and cell growth control. In 1991, Professor Hall and colleagues discovered mTOR (mechanistic Target of Rapamycin) and subsequently elucidated its role as a central controller of cell growth and metabolism. The discovery of mTOR led to a fundamental change in how one thinks of cell growth. It is not a spontaneous process that just happens when building blocks (nutrients) are available, but rather a highly regulated, plastic process controlled by mTOR-dependent signaling pathways. As a central controller of cell growth and metabolism, mTOR plays a key role in development, aging, and disease. Professor Hall is a Member of the US National Academy of Sciences and has received numerous awards, including the Breakthrough Prize in Life Sciences (2014), the Canada Gairdner Award for Biomedical Research (2015), the Albert Lasker Award for Basic Medical Research (2017), and the Balzan Prize for Biological Mechanisms of Aging (2024).

PROFESSOR HELEN H HOBBS

Life Science and
Medicine Committee

Professor Helen H Hobbs is an Investigator of the Howard Hughes Medical Institute and Professor of Internal Medicine and Molecular Genetics at University of Texas Southwestern Medical Center (UTSW). After graduating from Stanford University and Case Western Reserve Medical School, she trained in internal medicine at Columbia-Presbyterian and UTSW. Together with Jonathan Cohen, she has used human genetics to identify sequence variations of large effect size that alter plasma levels of LDL-cholesterol and triglycerides. She also discovered the two most impactful genetic risk factors for steatotic liver disease. Gene identification is the starting point for studies that have elucidated pathways and processes altered by the defective genes she has identified. She is a member of the National Academy of Medicine and National Academy of Sciences, and is recipient of The Breakthrough Prize in Life Sciences (2016) and the Harrington Prize for Innovation in Medicine (2018).

PROFESSOR DAVID JULIUS

Life Science and Medicine Committee

Professor David Julius received his undergraduate degree from MIT, where he worked with Alexander Rich studying mechanisms of tRNA aminoacylation. He then moved to UC Berkeley for graduate studies with Jeremy Thorner and Randy Schekman, elucidating mechanisms of peptide hormone processing and secretion, followed by postdoctoral studies with Richard Axel at Columbia University, where he identified genes encoding members of the serotonin receptor family. David then joined the faculty at UC San Francisco, where his research is focused on understanding molecular mechanisms of pain and sensory adaptation.

David is a member of the US National Academies of Science and Medicine and the American Academy of Arts and Sciences. He has received numerous awards, including the Shaw Prize in Life Science and Medicine, the Canada Gairdner International Award, the Breakthrough Prize in Life Sciences, and the Nobel Prize in Physiology or Medicine.

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PROFESSOR DENNIS YM LO

Life Science and
Medicine Committee

Professor Dennis Lo is the ninth Vice-Chancellor and President and the Li Ka Shing Professor of Medicine of The Chinese University of Hong Kong (CUHK). He is also the President of the Hong Kong Academy of Sciences. His research interests focus on the biology and diagnostic applications of cell-free nucleic acids in plasma. In particular, he discovered the presence of cell-free fetal DNA in maternal plasma in 1997 and has since then been pioneering non-invasive prenatal diagnosis using this technology. This technology has been adopted globally and has created a paradigm shift in prenatal medicine. He has also made many innovations using circulating nucleic acids for cancer detection, including the screening of early stage nasopharyngeal cancer.

In recognition of his research, Professor Lo has been elected as Member of the Chinese Academy of Sciences (CAS), Founding Member of the Hong Kong Academy of Sciences, Fellow of the Royal Society and Foreign Associate of the US National Academy of Sciences Professor Lo has won numerous awards, including the 2014 King Faisal International Prize in Medicine, the 2016 Future Science Prize in Life Science, the 2019 Fudan-Zhongzhi Science Award, the 2021 Breakthrough Prize in Life Sciences, the 2021 Royal Medal, the 2021 ESHG Mendel Award, the 2022 ISPD Pioneer Award, the 2022 Lasker-DeBakey Clinical Medical Research Award, the 2023 inaugural Tengchong Science Prize, the 2024 Jiménez Díaz Lecture Award and the 2025 Richard B. Johnston, Jr., MD Prize in Developmental Biology by March of Dimes.

PROFESSOR JOAN A STEITZ

Life Science and Medicine Committee

Professor Joan A Steitz earned her BS in chemistry from Antioch College in 1963. Significant findings from her work emerged as early as 1967, when her Harvard PhD thesis with Jim Watson examined the test-tube assembly of a ribonucleic acid (RNA) bacteriophage (antibacterial virus) known as R17.

Professor Steitz spent the next three years in postdoctoral studies at the Medical Research Council Laboratory of Molecular Biology in Cambridge, England, where she used early methods for determining the biochemical sequence of RNA to study how ribosomes know where to initiate protein synthesis on bacterial mRNAs. In 1970, she was appointed assistant professor of Molecular Biophysics and Biochemistry at Yale, becoming full professor in 1978. At Yale, she established a laboratory dedicated to the study of RNA structure and function. In 1979, Steitz and her colleagues described a group of cellular particles called small nuclear ribonucleoproteins (snRNPs), a breakthrough in understanding how RNA is spliced. Subsequently, her laboratory has defined the structures and functions of other noncoding RNPs, such as those that guide the modification of ribosomal RNAs, microRNAs and several produced by transforming herpesviruses.

Professor Steitz, a former investigator of the Howard Hughes Medical Institute, is a member of the American Academy of Arts and Sciences, National Academy of Sciences, Institute of Medicine, and the Royal Society of London. Her many honors include: National Medal of Science (1986); RNA Society Lifetime Achievement Award (2004); Gairdner Foundation International Award (2006); Lasker-Koshland Special Achievement Award in Medical Science (2018); and 21 honorary degrees.

PROFESSOR FIONA M WATT

Life Science and Medicine Committee

Professor Fiona M Watt obtained her first degree from Cambridge University and her DPhil, in cell biology, from the University of Oxford. She was a postdoc at MIT, where she first began studying differentiation and tissue organisation in mammalian epidermis. She established her first research group at the Kennedy Institute for Rheumatology in London and then spent 20 years at the CRUK London Research Institute. She helped to establish the CRUK Cambridge Research Institute and the Wellcome Trust Centre for Stem Cell Research and in 2012 she moved to King's College London to found the Centre for Stem Cells and Regenerative Medicine. From 2018 to 2022 she was on secondment as Executive Chair of the UK Medical Research Council. She is currently EMBO Director.

Professor Watt has received numerous awards and honours. She is a Fellow of the UK Royal Society and Academy of Medical Sciences, a Member of the European Molecular Biology Organisation and an International Member of the US National Academy of Sciences.

PROFESSOR CARLOS KENIG

Mathematical Sciences Committee

Professor Carlos Kenig is the Louis Block Distinguished Service Professor in the Department of Mathematics at the University of Chicago. He obtained his PhD at Chicago in 1978. Kenig's research interests are in harmonic analysis and partial differential equations.

Kenig was awarded the Salem Prize in 1984 and the Bocher Prize of the American Mathematical Society in 2008. Kenig received the Solomon Lefschetz medal of the Mathematics Council of the Americas in 2021. He was an invited speaker at the International Congress of Mathematicians in 1986 and 2002 and a plenary speaker in 2010. Kenig is a Fellow of the American Academy of Arts and Sciences and of the American Mathematical Society. He is a member of the US National Academy of Sciences. Kenig is a past vice-president of the AMS. He served as the President of the International Mathematical Union for the period 2019–2022.

PROFESSOR MARC CHANDRASHEKHAR KHARE

Mathematical Sciences Committee

Professor Chandrashekhar Khare was born in Mumbai, and studied at Cambridge, Oxford and Caltech, where he obtained his PhD in 1995. He worked at the Tata Institute of Fundamental Research and the University of Utah and is now a professor at the University of California, Los Angeles. Professor Khare's research is in number theory, especially on the relation between modular forms and Galois representations that underpins Wiles' proof of Fermat's Last Theorem. In 2008, he and Jean-Pierre Winterberger made a remarkable breakthrough with their proof of a celebrated conjecture of J.P. Serre. Professor Khare's honors and awards include the Fermat Prize (2007), Infosys Prize (2010) and the Cole Prize (2011), and he was elected as a Fellow of the Royal Society in 2012.

PROFESSOR TAKURO MOCHIZUKI

Mathematical Sciences Committee

Professor Takuro Mochizuki obtained his Doctor of Science from Kyoto University in 1999. He started his career at Osaka City University and then taught at Kyoto University. Since 2012, he has been a full professor at the Research Institute for Mathematical Sciences at Kyoto University. He also studied at the Institute for Advanced Study (2001–2003), Max-Planck Institute for Mathematics (2005–2006), and IHES (2006–2007) as a visitor.

He is working on complex differential geometry, algebraic geometry, and algebraic analysis. One of his main themes is pursuing equivalences between objects in algebraic geometry and differential geometry.

Professor Mochizuki received various honors, including the Spring Prize of the Mathematical Society of Japan (2006), the JSPS Prize (2010), the Japan Academy Medal (2010), the Japan Academy Prize (2011), the Osaka Science Prize (2012), the Asahi Prize (2020), the Breakthrough Prize in Mathematics (2022), and the Frontiers of Science Awards (2024). He was a plenary speaker at the 2014 International Congress of Mathematicians.

PROFESSOR NGAIMING MOK

Mathematical Sciences Committee

Professor Ngaiming Mok obtained his MA from Yale University and his PhD from Stanford University, and he started his career at Princeton University. He then taught at Columbia University and Université de Paris-Sud, Orsay, and he had been Full Professor at both universities, before taking up a Chaired Professorship at the University of Hong Kong (HKU) in 1994. Currently he is the Edmund and Peggy Tse Professor in Mathematics, Chair of Mathematics and Director of the Institute of Mathematical Research of HKU.

Professor Mok is a world-renowned mathematician dedicated to solving analytic and geometric problems on the interface of complex analysis, differential geometry, algebraic geometry and number theory. He has served on the editorial board of Inventiones Mathematicae (2002–2014) and Mathematische Annalen (1992–2024).

He is a Member of the Chinese Academy of Sciences (CAS), a Fellow of the Hong Kong Academy of Sciences, and a Fellow of the American Mathematical Society (AMS). His outstanding achievements have earned him many international honours including the Sloan Fellowship, the Presidential Young Investigator Award of the US, the Croucher Senior Fellowship Award of Hong Kong, the State Natural Science Award (Class II) of China and the Bergman Prize of the AMS. In 2022, Professor Mok was conferred the Future Science Prize in Mathematics and Computer Science, the Tan Kah Kee Science Award in Mathematics and Physics of the CAS, and the Chern Prize of the International Congress of Chinese Mathematicians. In 2023 he was a recipient of the Frontier of Knowledge Award of the International Congress of Basic Science.

Professor Mok served on the Fields Medal Committee of the International Congress of Mathematicians (ICM) 2010.He was an Invited Speaker in the Section "Real and Complex Analysis" of ICM 1994 in Zurich and has been invited as a Plenary Speaker of ICM 2026 in Philadelphia.

The Shaw Prize 2025
Award Ceremony
Presenters

MS ASTRID CHAN

Presenter, Project Producer and Corporate Trainer

Ms Astrid Chan is a professional host with over 30 years of experience in the performing arts industry. Fluent in English, Cantonese and Mandarin, she has hosted high-profile events for government and statutory bodies, including commemoration ceremonies of the Hong Kong Handover, Hong Kong Palace Museum and Kai Tak Sports Park openings, key transport facilities commission ceremonies, the Global Forum on International Mediation and so on. She has also hosted various Shaw Prize events for over a decade.

Besides hosting, Ms Chan is an accomplished actress, corporate trainer, columnist, and project producer. In 2016, she received the "Outstanding Women Award" for her career achievements.

MR JASON CHAN

Presenter, Actor and Producer

Mr Jason Chan is an accomplished presenter, actor and producer known for his diverse career in the entertainment industry. He graduated from the University of London with a Bachelor of Arts (Honours) and Postgraduate Diploma in Economics. Upon returning to Hong Kong, he participated in the TVB artiste training programme and graduated in 2006. Mr Chan has since taken leading roles in television, film, and on stage. As a presenter, he has hosted a wide range of television shows and events in Hong Kong, leveraging his fluency in multiple languages to connect with diverse audiences. Drawing on his extensive experience in video production, Mr Chan has also produced numerous advertising campaigns.

Special Acknowledgement
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Celebrating the work of John Richard Bond and George Efstathiou in Astronomy, Wolfgang Baumeister in Life Science and Medicine, Kenji Fukaya in Mathematical Sciences

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