The Shaw Prize 2020

Prize Announcement Press Conference

Contents

Welcome Address by Professor Kenneth Young, Chairman of The Shaw Prize Council

We are pleased to bring to you the Shaw Prize Awards for 2020.

The Shaw Prize was established in the year 2002 by Mr Run Run Shaw with the support and help of Mrs Mona Shaw, and is now managed under the Shaw Prize Foundation.

Since 2004 the Prize has been awarded annually for distinguished and significant achievements in the three scientific disciplines, namely, Astronomy, Life Science and Medicine, and Mathematical Sciences. Each Prize consists of a medal, a certificate and a monetary award of US$1.2 million.

The Shaw Prize is an international award, dedicated to honouring individuals, regardless of race, nationality, gender and religious belief, who have achieved significant breakthroughs in academic and scientific research or applications, and whose work has resulted in a positive and profound impact on mankind.

Recipients of the Prize are all internationally acclaimed scholars and scientists. Thanks to the effort of members of the Selection Committees and colleagues of the Foundation, the Prize has built up its prestige worldwide within a short period of time.

We look forward to greater success of the Prize in the years to come.

21 May 2020 Hong Kong

The Shaw Prize

The Shaw Prize is an international award to honour individuals 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 civilization.

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

Background

Established in November 2002 under the auspices of **Mr Run Run Shaw**, the Prize honours individuals, regardless of race, nationality, gender and religious belief, who have achieved significant breakthroughs in academic and scientific research or applications and whose works have resulted in positive and profound impacts on mankind.

The Shaw Prize is an international award managed and administered by The Shaw Prize Foundation based in Hong Kong. **Mr Shaw** also founded 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.

21 May 2020 Hong Kong

Press Release

Announcement of The Shaw Laureates 2020

The Shaw Prize in Astronomy is awarded to

Roger D Blandford

Luke Blossom Professor in the School of Humanities and Sciences and Professor of Physics and of Particle Physics and Astrophysics, Stanford University, USA

for his foundational contributions to theoretical astrophysics, especially concerning the fundamental understanding of active galactic nuclei, the formation and collimation of relativistic jets, the energy extraction mechanism from black holes, and the acceleration of particles in shocks and their relevant radiation mechanisms.

The Shaw Prize in Life Science and Medicine is awarded in equal shares to

Gero Miesenböck

Waynflete Professor of Physiology and Director of the Centre for Neural Circuits and Behaviour, University of Oxford, UK,

Peter Hegemann

Hertie Professor for Neuroscience and Head of the Department of Biophysics, Humboldt University of Berlin, Germany and

Georg Nagel

Professor for Molecular Plant-Physiology, Physiological Institute – Department of Neuroscience, University of Würzburg, Germany

for the development of optogenetics, a technology that has revolutionized neuroscience.

The Shaw Prize in Mathematical Sciences is awarded in equal shares to

Alexander Beilinson

David and Mary Winton Green University Professor, The University of Chicago, USA and

David Kazhdan

Professor of Mathematics, The Hebrew University of Jerusalem, Israel

for their huge influence on and profound contributions to representation theory, as well as many other areas of mathematics.

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Thursday, 21 May 2020. At today's press conference in Hong Kong, The Shaw Prize Foundation announced the Shaw Laureates for 2020. Information was posted on the website **www.shawprize.org** at Hong Kong time 15:30 (GMT 07:30).

The Shaw Prize consists of three annual prizes: Astronomy, Life Science and Medicine, and Mathematical Sciences, each bearing a monetary award of US$1.2 million. This will be the seventeenth year of the awards.

22 April 2021 Hong Kong (Revised)

Announcement

The Shaw Prize in Astronomy 2020

is awarded to

Roger D Blandford

for his foundational contributions to theoretical astrophysics, especially concerning the fundamental understanding of active galactic nuclei, the formation and collimation of relativistic jets, the energy extraction mechanism from black holes, and the acceleration of particles in shocks and their relevant radiation mechanisms.

Biographical Note of Roger D Blandford

Roger D Blandford was born in 1949 in Grantham, Lincolnshire, United Kingdom and is currently Luke Blossom Professor in the School of Humanities and Sciences and Professor of Physics and of Particle Physics and Astrophysics, Stanford University, USA. He obtained his Bachelor's degree in Theoretical Physics and his PhD from Cambridge University, UK in 1970 and 1974 respectively. He was a Charles Kingsley Bye-Fellow at Magdalene College (1972–1973) and Research Fellow at St John's College (1973–1976), Cambridge University. He then joined California Institute of Technology, USA, where he was successively Assistant Professor (1976–1979), Professor (1979–1989) and Richard Chace Tolman Professor of Theoretical Astrophysics (1989–2004). He was the Pehong and Adele Chen Director of the Kavli Institute for Particle Astrophysics and Cosmology (KIPAC) (2003–2013) and Professor of Particle Astrophysics and Cosmology (2003–2005) at Stanford University, USA. He was also a KIPAC Division Head, PPA Directorate at SLAC National Accelerator Laboratory (2005–2013). He is a member of the US National Academy of Sciences, the American Academy of Arts and Sciences and a Fellow of the Royal Society of London.

22 April 2021 Hong Kong (Revised)

The Shaw Prize in Astronomy 2020

Press Release

The Shaw Prize in Astronomy 2020 is awarded to **Roger D Blandford**, Luke Blossom Professor in the School of Humanities and Sciences and Professor of Physics and of Particle Physics and Astrophysics, Stanford University, USA for his foundational contributions to theoretical astrophysics, especially concerning the fundamental understanding of active galactic nuclei, the formation and collimation of relativistic jets, the energy extraction mechanism from black holes, and the acceleration of particles in shocks and their relevant radiation mechanisms.

Roger D Blandford is one of the most outstanding all-round theoretical astrophysicists of his generation. He has made major contributions to an extremely broad spectrum of astrophysical problems, arguably placing him among the rare group of "universal" scientists. He has been one of the leaders in the modelling and interpretation of gravitational lensing. He has contributed to the interpretation of γ-ray data from the Fermi spacecraft and to the study of gravitational waves. His most important research contributions deal with the fundamental understanding of active galactic nuclei (AGN) and their relativistic jets.

He is the author or co-author of classic papers that identified the key processes involved in AGN, driven by accreting massive black holes. These same processes are also relevant to γ-ray bursts and stellar-mass black holes. He and his collaborators originated key ideas leading to the spectacular multi-scale acceleration and collimation of relativistic jets, involving complex fluid-dynamical and electro-dynamical processes. One of his most prescient contributions was the recognition that magnetic torques could extract energy from a spinning (Kerr) black hole, and thus efficiently drive jets. This paper as well as others on the creation of fast winds from accretion disks around massive black holes have in recent years become even more relevant and widely cited than when they were

originally written. This is because high resolution radio and infrared interferometric observations are just now beginning to directly probe and reveal the innermost accretion and jet formation zones around massive black holes, which Blandford analyzed in his prescient theoretical work. The disk winds are also relevant for outflows from protostars.

Another work that is gaining increasing attention deals with the fate of binary black holes, which arise as the outcome of mergers between galaxies. He is also the co-inventor of the "reverberation technique", which uses the temporal changes of line and continuum emission to explore the spatial structure of gas in the vicinity of distant super-massive black holes, a now-standard technique used by many observers.

Blandford's contributions to this subject began with analytic work, but in recent papers he and his collaborators have exploited increasingly sophisticated numerical techniques to capture realistically the complex physics in the strong gravity environment of spinning and accreting black holes.

In addition to his research, **Roger Blandford** stands out because of his tireless participation in community service, culminating in the leadership of the 2010 US decadal survey in astrophysics.

Blandford's many profound contributions to theoretical astrophysics and his continuing originality and towering presence make him a worthy recipient of the 2020 Shaw Prize in Astronomy.

Astronomy Selection Committee
The Shaw Prize

22 April 2021 Hong Kong (Revised)

Announcement

The Shaw Prize in Life Science and Medicine 2020

is awarded in equal shares to

Gero Miesenböck,

Peter Hegemann

and

Georg Nagel

for the development of optogenetics, a technology that has revolutionized neuroscience.

21 May 2020 Hong Kong

Biographical Notes of Shaw Laureates in Life Science and Medicine 2020

Gero Miesenböck was born in 1965 in Upper Austria and is currently Waynflete Professor of Physiology and Director of the Centre for Neural Circuits and Behaviour at the University of Oxford, UK. He received his M.D. from the University of Innsbruck, Austria. He did postdoctoral research at the Memorial Sloan Kettering Research Institute in New York (1992–1998) and remained as an Assistant Member and Head of Laboratory of Neural Systems there (1999–2004). At the same time, he was also an Assistant Professor of Neuroscience, Cell Biology and Genetics at Cornell University, USA. He served as Associate Professor of Cell Biology, Cellular and Molecular Physiology at Yale University School of Medicine, USA (2004–2007) until he moved to his current position in Oxford. He is a member of the Austrian and German Academies of Sciences and a Fellow of the Royal Society of London.

Peter Hegemann was born in 1954 in Münster, Germany and is currently the Hertie Professor for Neuroscience and Head of the Department for Biophysics at Humboldt University of Berlin, Germany. He studied in Chemistry at the University of Münster and Ludwig-Maximilians-Universitat ät München (LMU Munich) from 1975 to 1980. He received his PhD from Max-Planck Institut (MPI) for Biochemistry, Germany (1984). He was a Postdoctoral Fellow at Syracuse University, USA (1985–1986). He then returned to Germany and started a research group at MPI for Biochemistry (1986–1992), after which he became a Professor at the University of Regensburg, Germany (1993–2004) and has been appointed Full Professor (2005–) and Hertie Professor for Neuroscience (2015–) at the Humboldt University of Berlin. He is a member of the German National Academy of Sciences, Leopoldina.

Georg Nagel was born in 1953 in Weingarten, Germany and is currently a Professor for Molecular Plant-Physiology at the University of Würzburg, Germany. He studied Biology and Biophysics at the University of Konstanz, Germany and received his PhD from the University of Frankfurt, Germany in 1988. After postdoctoral work at Yale University, USA and Rockefeller University, USA, he returned to Germany in 1992, as a group leader in the Department of Biophysical Chemistry at the Max Planck Institute of Biophysics. Since 2004, he has been Professor of Molecular Plant-Physiology and Biophysics at the University of Wurzburg.

21 May 2020 Hong Kong (Revised)

The Shaw Prize in Life Science and Medicine 2020

Press Release

The Shaw Prize in Life Science and Medicine 2020 is awarded in equal shares to **Gero Miesenböck**, Waynflete Professor of Physiology and Director of the Centre for Neural Circuits and Behaviour, University of Oxford, UK, **Peter Hegemann**, Hertie Professor for Neuroscience and Head of the Department of Biophysics, Humboldt University of Berlin, Germany and **Georg Nagel**, Professor for Molecular Plant-Physiology, Physiological Institute – Department of Neuroscience, University of Würzburg, Germany for the development of optogenetics, a technology that has revolutionized neuroscience.

Understanding the brain is a daunting challenge. Each of the many billions of nerve cells in the human brain may make thousands of contacts with other neurons, resulting in an astronomical number of synaptic connections. The tools that allow us to trace and regulate neural networks in experimental animals have emerged in recent years and thanks to the discoveries of our Shaw Life Science Awardees for 2020: **Gero Miesenböck** of Oxford University, **Peter Hegemann** of Humboldt University, Berlin, and **Georg Nagel** of the University of Würzburg.

Neuroscientists had long sought methods to control the activity of individual nerve cells in order to observe the networks in which they communicate and define the processes that they control. Local direct activation of nerve cells by chemical or physical means has been used for over a century to detect and control voltage changes on cells in a network. The dream had been to control voltage changes indirectly by using light, allowing a less invasive and more precise means of controlling and observing the function of neural networks in an intact organism. The first key breakthrough came in 2002 with the development of an optogenetic tool devised by **Miesenböck** and colleagues. Using a naturally light-responsive protein, rhodopsin, which serves as the pigment on which we

rely for vision, his team inserted the *Drosophila* (fruitfly) genes necessary to express the light-responsive rhodopsin into a vertebrate nerve cell culture. As a result, cells in the culture showed patterns of neuronal activity elicited by light. Building on this initial finding, **Miesenböck** was the first to show that this approach could be applied to the intact fruitfly and that by optically activating particular circuits one could alter the behaviour of the fly. In the first report **Miesenböck** concluded that "Since sensitivity to light is built into each target neuron, advance knowledge of its spatial coordinates is unnecessary. Large numbers of neurons can be addressed precisely and simultaneously without undesirable cross-talk to neighbouring neurons that are functionally distinct". **Miesenböck**'s approach represented the first chapter in a new era of optogenetics.

In the application of this approach to animals, the fruitfly rhodopsin had certain technical disadvantages in terms of speed of response to light and genetic simplicity. Fortunately, and virtually simultaneous to **Miesenböck**'s work, a simpler photo-responsive channel protein emerged from studies on the detection of light by an algae, *Chlamydomonas*, that swims toward a source of light (phototaxis). Rhodopsins had been discovered and characterized in certain archaeal microorganisms, but the speedy phototactic response of the algal photoreceptor suggested that a single receptor protein may be sufficient to elicit a change in membrane current. In early work published in 1991, **Peter Hegemann** discovered a rhodopsin-based photocurrent in *Chlamydomonas*. After years of further work on this light response, **Hegemann** teamed up with **Georg Nagel** and in two papers published in 2002 and 2003, they demonstrated by gene cloning the existence of two light-responsive channel proteins, ChR1 and ChR2. Crucially, the team discovered that ChR2 elicits an extremely fast, light-induced change in membrane current when the gene is expressed in vertebrate cells. This discovery represented the second major step in the development of optogenetics.

The discovery of ChR2 by **Hegemann** and **Nagel** has enabled various functional applications in a variety of cells and tissues. In 2005, Karl Deisseroth with his graduate students Ed Boyden and Feng Zhang, and independently a few months later the team of **Hegemann**, Landmesser, and Herlitze documented the superior features of ChR2 as applied to nerve cells and vertebrate tissue. Since then, Deisseroth, Boyden, Zhang and others built many tools necessary to deliver both light and the genes precisely to neural networks deep in the brain.

As a result of these foundational, basic science discoveries, we now have the tools needed to visualize and precisely control specific neural networks in the brain of an animal. These discoveries presage a golden age of exploration of the mysteries of cognition and emotion with potential applications in psychiatric disorders that are only now being defined at the level of genes and cells.

Life Science and Medicine Selection Committee
The Shaw Prize

21 October 2020 Hong Kong (Revised)

Announcement

The Shaw Prize in Mathematical Sciences 2020

is awarded in equal shares to

Alexander Beilinson

and

David Kazhdan

for their huge influence on and profound contributions to representation theory, as well as many other areas of mathematics.

21 May 2020 Hong Kong

Biographical Notes of Shaw Laureates in Mathematical Sciences 2020

Alexander Beilinson was born in 1957 in Moscow, Russia and is currently the David and Mary Winton Green University Professor at the University of Chicago, USA. He obtained his PhD in 1988 from the Landau Institute of Theoretical Physics, Russia. He was a Researcher at the Landau Institute (1987–1993) and a Professor at the Massachusetts Institute of Technology, USA (1988–1998) before moving to his present position.

David Kazhdan was born in 1946 in Moscow, Russia and is currently Professor of Mathematics at the Hebrew University of Jerusalem, Israel. He received a diploma in 1967 and earned his PhD under Alexandre Kirillov in 1969 from Moscow State University, Russia. After working at Moscow State University as a Researcher (1969–1975), he emigrated to USA to take up a position at Harvard University, where he was successively Visiting Professor (1975–1977), Professor (1977–2002) and Professor Emeritus of Mathematics (2002–). He then emigrated to Israel and has been Professor at the Hebrew University of Jerusalem since 2002. He is a member of the US National Academy of Sciences and the American Academy of Arts and Sciences.

22 May 2020 Hong Kong (Revised)

The Shaw Prize in Mathematical Sciences 2020

Press Release

The Shaw Prize in Mathematical Sciences 2020 is awarded in equal shares to **Alexander Beilinson**, David and Mary Winton Green University Professor at the University of Chicago, USA and **David Kazhdan**, Professor of Mathematics at the Hebrew University of Jerusalem, Israel, for their huge influence on and profound contributions to representation theory, as well as many other areas of mathematics.

Alexander Beilinson and **David Kazhdan** are two mathematicians who have made profound contributions to the branch of mathematics known as representation theory, but who are also famous for the fundamental influence they have had on many other areas, such as arithmetic geometry, K-theory, conformal field theory, number theory, algebraic and complex geometry, group theory, and algebra more generally. As well as proving remarkable theorems themselves, they have created conceptual tools that have been essential to many breakthroughs of other mathematicians. Thanks to their work and its exceptionally broad reach, large areas of mathematics are significantly more advanced than they would otherwise have been.

Group theory is intimately related to the notion of symmetry and one can think of a representation of a group as a "description" of it as a group of transformations, or symmetries, of some mathematical object, usually linear transformations of a vector space. Representations of groups are important as they allow many group-theoretic problems to be reduced to problems in linear algebra, which is well understood. They are also important in physics because, for example, they describe how the symmetry group of a physical system affects the solutions of equations describing that system and the representations also make the symmetry group better understood. In loose terms, representation theory is the study of the basic symmetries of mathematics and physics. Symmetry groups are of many different kinds: finite groups, Lie groups, algebraic groups, *p*-adic groups, loop

groups, adelic groups. This may partly explain how **Beilinson** and **Kazhdan** have been able to contribute to so many different fields.

One of **Kazhdan**'s most influential ideas has been the introduction of a property of groups that is known as **Kazhdan**'s property (T). Among the representations of a group there is always the not very interesting "trivial representation" where we associate with each group element the "transformation" that does nothing at all to the object. While the trivial representation is not interesting on its own, much more interesting is the question of how close another representation can be to the trivial one. Property (T) gives a precise quantitative meaning to this question. **Kazhdan** used Property (T) to solve two outstanding questions about discrete subgroups of Lie groups. Since then it has had important applications to group representation theory, lattices in algebraic groups over local fields, ergodic theory, geometric group theory, expanders, operator algebras and the theory of networks, and has been recognised as a truly fundamental concept in representation theory.

After this first breakthrough **Kazhdan** solved several other outstanding problems about lattices in Lie groups and representation theory such as the Selberg conjecture about non-uniform lattices, and the Springer conjecture on the classification of affine Hecke algebras.

While working with George Lusztig on this last problem, **Kazhdan** introduced an important family of polynomials, as well as formulating a very influential pair of (equivalent) conjectures. One of **Alexander Beilinson**'s achievements was to prove these conjectures with Joseph Bernstein. (They were also proved independently by Jean-Luc Brylinski and Masaki Kashiwara.) The methods introduced in this proof led to the area known as geometric representation theory, an area that **Kazhdan** also played an important part in developing, which aims to understand the deeper geometric and categorical structures that often underlie group representations. The resulting insights have been used to solve several open problems.

Another famous concept, this one established by **Beilinson**, Bernstein and Pierre Deligne, is that of a perverse sheaf. It is not feasible to give a non-technical explanation of what a perverse sheaf is — one well-known account begins by helpfully stating that it is neither perverse nor a sheaf — but it is another concept that can be described as a true discovery, in that it has a far from obvious definition, but it is now seen to be "one of the most natural and fundamental objects in topology" (to quote from the same account). One of the central goals of mathematics, the Langlands programme, has been deeply influenced by this concept. For example, the whole work of Ngô on the "fundamental lemma" and the contributions of Laurent and Vincent Lafforgue (all three of them major prizewinners for this work) would have been unthinkable without it. **Kazhdan** too has brought extraordinary mathematical insight into this circle of ideas. By pointing out that orbital integrals could be interpreted as counting points on certain algebraic varieties over finite fields, he and Lusztig opened the way to the proof of the fundamental lemma, and since then **Kazhdan** has had and continues to have an enormous influence on the subject. **Beilinson** is also famous for formulating deep conjectures relating *L*-functions and motivic theory, which have completely changed the understanding of both topics and led to an explosion of related work.

Beilinson and **Kazhdan** are at the heart of many of the most exciting developments in mathematics over the last few decades, developments that continue to this day. It is for this that they are awarded the 2020 Shaw Prize in Mathematical Sciences.

Mathematical Sciences Selection Committee
The Shaw Prize

21 May 2020 Hong Kong

The Shaw Prize
2020

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The Shaw Prize

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Mr Raymond Chan

Professor Wai-Yee Chan

Professor Pak-Chung Ching

Professor Yuet-Wai Kan

Professor Frank H Shu

Members' Biographical Notes

Professor Kenneth Young is Chairman of the Council and Vice Chairman of the Board of Adjudicators of The Shaw Prize, and Emeritus Professor of Physics at The Chinese University of Hong Kong.

Mr Raymond Chan is Member of Board of Advisor of The Sir Run Run Shaw Charitable Trust, Chairman of The Shaw Foundation and The Shaw Prize Foundation and Managing Director of Shaw Group of Companies.

Professor Wai-Yee Chan is Pro-Vice-Chancellor / Vice President, Master of CW Chu College and Professor of Biomedical Sciences, Faculty of Medicine, The Chinese University of Hong Kong.

Professor Pak-Chung Ching is Director of Shun Hing Institute of Advanced Engineering and Choh-Ming Li Professor of Electronic Engineering at The Chinese University of Hong Kong.

Professor Yuet-Wai Kan is Louis K Diamond Professor of Hematology at the University of California, San Francisco, USA.

Professor Frank H Shu is Chairman of the Board of Adjudicators of The Shaw Prize and Professor Emeritus of Physics at the University of California, San Diego, USA.

21 May 2020 Hong Kong

The Shaw Laureates *(2004 – 2020)*

YEAR	Astronomy	Life Science and Medicine	Mathematical Sciences
2004	P James E Peebles (*USA*)	*Two prizes awarded:* (1) Stanley N Cohen (*USA*) Herbert W Boyer (*USA*) Yuet-Wai Kan (*USA*) (2) Richard Doll (*UK*)	Shiing-Shen Chern (*China*)
2005	Geoffrey Marcy (*USA*) Michel Mayor (*Switzerland*)	Michael Berridge (*UK*)	Andrew John Wiles (*UK*)
2006	Saul Perlmutter (*USA*) Adam Riess (*USA*) Brian Schmidt (*Australia*)	Xiaodong Wang (*USA*)	David Mumford (*USA*) Wentsun Wu (*China*)
2007	Peter Goldreich (*USA*)	Robert Lefkowitz (*USA*)	Robert Langlands (*USA*) Richard Taylor (*UK*)
2008	Reinhard Genzel (*Germany*)	Ian Wilmut (*UK*) Keith H S Campbell (*UK*) Shinya Yamanaka (*Japan*)	Vladimir Arnold (*Russia*) Ludwig Faddeev (*Russia*)
2009	Frank H Shu (*USA*)	Douglas L Coleman (*USA*) Jeffrey M Friedman (*USA*)	Simon K Donaldson (*UK*) Clifford H Taubes (*USA*)
2010	Charles L Bennett (*USA*) Lyman A Page Jr (*USA*) David N Spergel (*USA*)	David Julius (*USA*)	Jean Bourgain (*USA*)
2011	Enrico Costa (*Italy*) Gerald J Fishman (*USA*)	Jules A Hoffmann (*France*) Ruslan M Medzhitov (*USA*) Bruce A Beutler (*USA*)	Demetrios Christodoulou (*Switzerland*) Richard S Hamilton (*USA*)
2012	David C Jewitt (*USA*) Jane Luu (*USA*)	Franz-Ulrich Hartl (*Germany*) Arthur L Horwich (*USA*)	Maxim Kontsevich (*France*)
2013	Steven A Balbus (*UK*) John F Hawley (*USA*)	Jeffrey C Hall (*USA*) Michael Rosbash (*USA*) Michael W Young (*USA*)	David L Donoho (*USA*)
2014	Daniel Eisenstein (*USA*) Shaun Cole (*UK*) John A Peacock (*UK*)	Kazutoshi Mori (*Japan*) Peter Walter (*USA*)	George Lusztig (*USA*)
2015	William J Borucki (*USA*)	Bonnie L Bassler (*USA*) E Peter Greenberg (*USA*)	Gerd Faltings (*Germany*) Henryk Iwaniec (*USA*)
2016	Ronald W P Drever (*UK*) Kip S Thorne (*USA*) Rainer Weiss (*USA*)	Adrian P Bird (*UK*) Huda Y Zoghbi (*USA*)	Nigel J Hitchin (*UK*)
2017	Simon D M White (*Germany*)	Ian R Gibbons (*USA*) Ronald D Vale (*USA*)	János Kollár (*USA*) Claire Voisin (*France*)
2018	Jean-Loup Puget (*France*)	Mary-Claire King (*USA*)	Luis A Caffarelli (*USA*)
2019	Edward C Stone (*USA*)	Maria Jasin (*USA*)	Michel Talagrand (*France*)
2020	**Roger D Blandford** (*USA*)	**Gero Miesenböck** (*UK*) **Peter Hegemann** (*Germany*) **Georg Nagel** (*Germany*)	**Alexander Beilinson** (*USA*) **David Kazhdan** (*Israel*)

Note: Award may not be shared equally. For details, please refer to Announcement and Citation on the Shaw Prize website (www.shawprize.org)
Countries mentioned above refer to the sites of the work places of the Laureates at the time of the award.