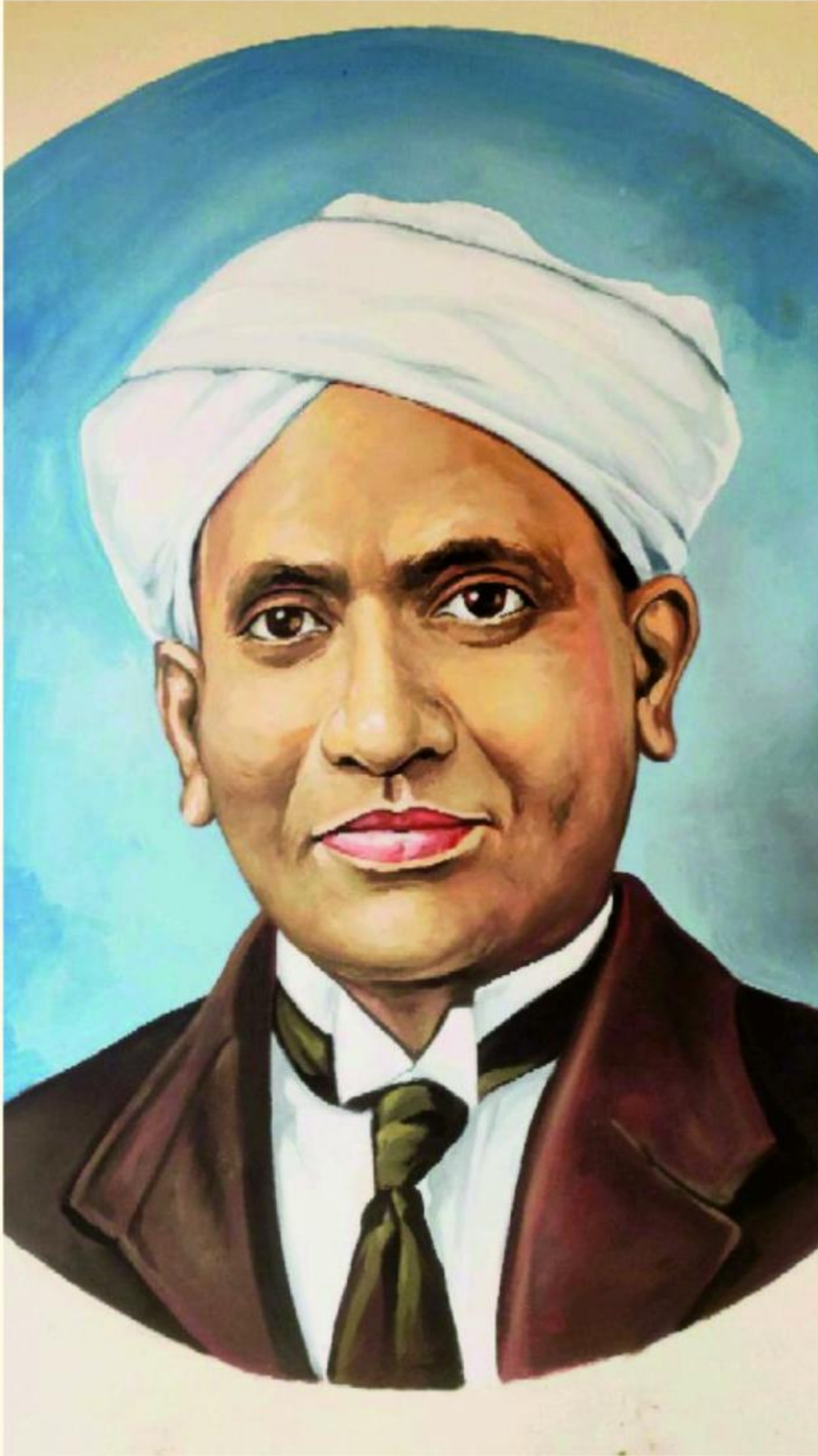


Voice of Students

விஞ்ஞானப் பூக்கள் VIGNANA POOKAL

Volume - 32 (March 2025)



Nobel Prize Winner
நோபல் பரிசு வெற்றியாளர்



THE MADURAI DIRAVIYAM THAYUMANAVAR HINDU COLLEGE
PETTAI, TIRUNELVELI - 627 010.

**THE MADURAI DIRAVIYAM THAYUMANAVAR HINDU COLLEGE,
TIRUNELVELI-10**

KALAI PONGAL 2025 (Inter-Departmental Competitions)

WINNERS: PG and Research Department of Economics



RUNNERS: Department of Zoology



மதுரை திரவியம் தாயுமானவர்

இந்துக் கல்லூரி

திருநெல்வேலி - 627 010



(தனிச்சுற்றுக்கு மட்டும்)

விஞ்ஞானப் பூக்கள்

>>.....<<

இதழ் 32

மார்ச் 2025

>>.....<<



நோபல் பரிசு வெற்றியாளர்

Nobel Prize Winner

vignanapookal@gmail.com

அறிவியல் உணர்வு - சமுதாயத்தேவை

அறிவியல் நோக்கு - சமுதாய வளர்ச்சி

Sir.C.V. Raman(1930) received Nobel first ever in physics from India

மலர்க்குழு உறுப்பினர்கள்

இதழ் - 32 (மார்ச் - 2025)

துணையாய்

பேராசிரியர்கள்

மாணவர்கள்

இயற்பியல் துறை

Dr.D. குருவம்மாள்

P. சுந்தரகோமதி

II-M.Sc., Physics

M. ராஜலட்சுமி

I- B.Sc. Physics

வேதியியல் துறை

Dr.S. கவிதா

M. ஆஷ்டையம்மாள்

III-B.Sc., Chemistry

கணிப்பொறி துறை

Dr.P. வேல்மணி

B. பகவதிலட்சுமி

II-B.Sc., CS

கணிதத் துறை

Dr.N. மீனா

R. மணிஷா

II-M.Sc., Maths

M. ஜெயசூர்யா

III-B.Sc., Maths

விலங்கியல் துறை

Dr.A. சிவகுருநாதன்

N. அக்ஷயா

III-B.Sc., Zoology

உறுதுணையாய்

Dr.K. பாலசுப்பிரமணியன்

முதல்வர், ம.தி.தா. இந்துக்கல்லூரி

Feedback - vignanapookal@gmail. com

Subramanian Chandrashekar(1983) - Indian origin received Nobel in physics

தலையங்கம்

நோபல் பரிசு என்பது உலகில் மிகப்பெரிய விருதுகளில் ஒன்றாகும். இது, ஸ்வீடன் நாட்டைச் சேர்ந்த ஆல்ஃபிரட் நோபல் அவர்கள் உயிலில் எழுதியபடி, அவர் கூறிய நோக்கத்திற்காக 1901 ஆம் ஆண்டு முதல், நோபலின் நினைவு நாளான டிசம்பர் 10ஆம் தேதி வழங்கப்படுகிறது.

நோபல் தன் வாழ்நாளில் மிகப் பெருமளவில் செல்வம் சேர்த்தார். அவரது வருமானத்தில் பெரும்பகுதி அவரது 355 கண்டுபிடிப்புகளினால் கிடைத்தது. அவரது கண்டுபிடிப்புகளில் முக்கியமானது டைனமைட் ஆகும்.

ஆரம்பத்தில் இயற்பியல், வேதியியல், மருத்துவம், இலக்கியம் மற்றும் அமைதி ஆகிய ஐந்து பிரிவுகளில் விருதுகள் வழங்கப்பட்டன. 1968 ஆம் ஆண்டு முதல், ஸ்வீடன் மத்திய வங்கியின் 300வது ஆண்டு நிறைவைக் கொண்டாடும் வகையில் பொருளாதார அறிவியலுக்கான நோபல் பரிசும் சேர்க்கப்பட்டது.

மன அமைதிக்கான நோபல் பரிசு நார்வேயிலும், மற்ற பிரிவுகளின் பரிசுகள் ஸ்வீடனிலும் வழங்கப்படுவது வழக்கம்.

மனித குலத்திற்கு மிகப்பெரிய நன்மையை அளிக்கும் ஒப்பற்ற ஆய்வு மேற்கொண்டவர்களுக்கும், பெரும் பயன் விளைவிக்கும் தொழில் நுட்பங்கள் அல்லது கருவிகளைக் கண்டு பிடித்தவர்களுக்கும், சமூகத்திற்கு அரிய தொண்டாற்றியவர்களுக்கும் இப்பரிசு வழங்கப்படுகிறது.

இதில் அமைதிக்கான நோபல் பரிசு மட்டும் சில நிறுவனங்களுக்கும் வழங்கப்படுகிறது. எடுத்துக்காட்டாக,

சர்வதேச செஞ்சிலுவைச் சங்கம் மூன்று முறை நோபல் பரிசு பெற்றுள்ளது.

தொழில்நுட்ப வளர்ச்சியில் எந்த மாதிரியான ஆய்வுகள் நடைபெறுகின்றன. அவை மக்களுக்கு எவ்வகையில் பயன்படும் என்பதை மாணவர்களுக்கு தெரியப்படுத்தவே இந்த விஞ்ஞானப் பூக்கள் இதழ்-32, இதில் 2020 முதல் 2024 வரை நோபல் பரிசு பெற்றவர்கள், அவர்களுடைய கண்டுபிடிப்புகள் ஆகியவை தொகுத்தளிக்கப்பட்டுள்ளது.

இலக்கியத்திற்காக 1913ல் நோபல் பரிசு பெற்ற இந்தியர் ரவீந்திரநாத் தாகூரின் படைப்பான கீதாஞ்சலியின் கவிதை வரிகள் மாணவர்கள் மத்தியில் புதிய அத்தியாத்தை திறந்து வைத்தது. அதில் இரு வரிகள் இதோ...

Where the mind is without fear and
the head is held high

மாணவர்கள் தங்கள் எண்ணங்களில் புதுமையை
புகுத்தி எதிர்காலத்தை வளமாக்கிட வாழ்த்துக்கள்.

- மலர்க்குழு

Nobel Prize Winner (2020)

Name of the Nobel Prize Winner

World Food Programme (WFP)



Year

In 2020 they got a Noble peace prize.

Country

The 2020 Noble peace prize was awarded to the world food programme (Founded in 1961) by the Norwegian Nobel committee. It is located in home.

Field

WFP won the 2020 Noble peace prize for its efforts for combating hunger, its contribution to creating peace in conflicted areas, and for acting as a driving force in effort to prevent the use of food as a weapon of war and conflict.

Description about their contribution

The Covid-19 crisis has also added to global food insecurity with a likely total of 265 million starving people within a year. In countries

such as yeman, congo, Nigeria, South Sudan and Burkina Faro the combination of violent conflict and the pandemic has led to a dramatic rise in the number of people living on the brink of starvation.

Affiliations

The world Food programme, a united nations body in the world's largest humanitarian organisation addressing hunger and promoting food security.

Other information

Recognition and awards

Receiving the award executive David Bensley called for to step up and help source the billions WFP needs to save 30 million people from famine.

Challenges

In 2018, the center for Global Development ranked WFP last in a study of 40 aid programmes based on indicators grouped into four themes Maximising efficiency, festering institution, reducing Burdens and transparency and learning. The Paris Declaration on Aid Effectiveness (2005), the Accta Agenda for action (2008) and the Bison partnership Agreement (2011).

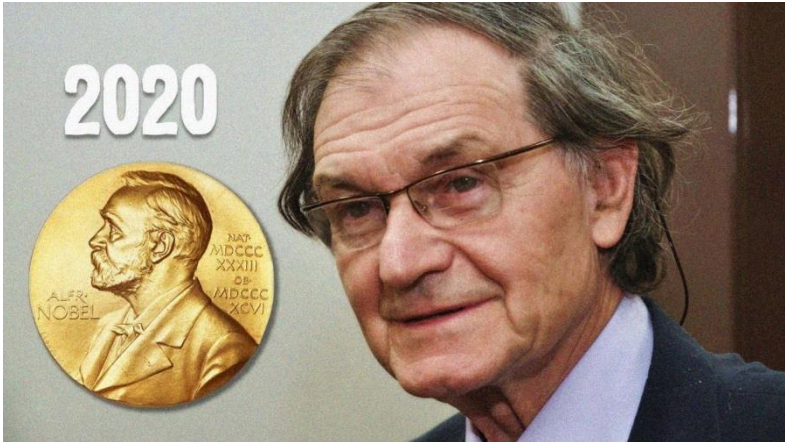
G.Anurajam, S.Mutheswari

Ist Year B.Sc., Zoology,

Nobel Prize Winner (2020)

Name of the Nobel Prize Winner

Roger Penrose



Year

He got Nobel Prize in 2020 for discovery of the black hole formation which is a robust prediction of the general theory of relativity.

Country

Roger Penrose belongs to British.

Field

Sir Roger Penrose is an mathematician, mathematical Physicist, Philosopher of science and Noble Laureate in Physics.

Description about their contribution

A black hole is a Supermassive compact object with a gravitational force so large that nothing, not even light, can escape from it. In

Alfred Nobel holds 355 patents

1964, Roger penrose proposed Critical mathematical tools to describe black holes. He showed that Einstein's general theory of relativity means the formation of black holes must be seen as a natural process in the development of the Universe. He was also able to describe black holes in detail : at their farthest depths is a singularity where all known laws of nature dissolve.

Affiliations

Roger Penrose is Emeritus Rouse Ball professor of Mathematics in the University of Oxford, an emeritus fellow of Wadham College, Oxford and honorary fellow of St.John's College, Cambridge and University College, London.

Other information

(i) Early Life & Education :

He was born on 8th August 1931 (age 93 years) Colchester, Black holes, Singularity Theorems, Twistor Theory, Penrose Tillings, conformal cyclic cosmology.

(ii) Research and Career :

His Research area includes General relativity and Cosmology, Black holes, Singularity Theorems, Twistor Theory, Penrose Tillings, conformal cyclic cosmology.

(iii) Award and Highlights :

Nobel Prize in Physics (2020), Wolf Prize in Physics (1988), Fellow of the Royal Society, Knighthood in 1994, Appointed to the Order of Merit in 2000, Emeritus Fellow of Wadham College, Emeritus Rouse Ball professor of Mathematics at the University of Oxford – Currently holds this position.

N.Akshaya

III B.Sc., Zoology

Nobel Prize Winner (2020)

Name of the Nobel Prize Winner

Reinhard Genzel, Andrea Ghez



Year

In 2020 they get nobel prize.

Country

Reinhard Genzel is from Germany

Andrea Ghez is from the United States

Field

They get a Nobel Prize in the field of Physics.

Description about their contribution

Reinhard Genzel and Andrea Ghez shared the 2020 Nobel Prize in physics for their discovery of a supermassive compact object at the centre of the milky way. Which is now understood

to black hole. They achieved this by independently measuring the orbits of stars around Sagittarius A*, the bright point of light at the centre of our galaxy.

Affiliations

Reinhard Genzel is affiliated with the Max Planck Institute for Extraterrestrial Physics and the University of California, Berkeley. While Andrea Ghez is affiliated with the University of California, Los Angeles. They jointly won the 2020 Nobel Prize in Physics for their work on the supermassive black hole at the centre of the Milky Way.

Other information

(i) Early Life & Education :

Reinhard Genzel Born in Bad Homburg, Germany in 1952, Andrea Ghez Born in New York City.

Reinhard Genzel and Andrea Ghez both pursued advanced degrees in physics and astronomy.

(ii) Career and Research

Their research focuses on the dynamics of stars orbiting this black hole, using advanced techniques like adaptive optics to overcome atmospheric distortions and achieve high resolution imaging.

(iii) Award and Recognition.

Both scientists got a awards for their work including the Noble Prize in physics 2020. They sharded half of the prize with Roger penrose. The other half for his discovered of black hole formation. Ghez has received numerous other accolades, including the crafoord prize in Astronomy. Ghez recognition includes the shaw prize and the carafoord prize in Astronomy.

4) Impact for their work.

1. Confirmation of a supermassive Black Hole.
2. Advancement of observational techniques.
3. Inspiring future research.

R. Siva Nandhini

III B.Sc., Zoology

Nobel Prize Winner (2020)

Name

Emmanuelle charpentier and Jennifer doudna



Year

In 2020 they get nobel prize.

Country

Emmanuelle charpentier is from France.

Jennifer doudna is from the united states.

Field

The got a Noble Prize in the field of Chemistry.

Description about their contribution

They development of CRISPR- Casa, a tool for gene editing while this tool was not about Botany it has enoromous application.

Economics Nobel prize category established later

Their ground breaking work on the CRISPR/ Cas 9 genetic scissors. The revolutionary tool enables precise editing of DNA, allowing researchers to change the genetic code of animals, plants, and micro organisms with unprecedented accuracy. The CRISPR/cas 9 (Clustered Regularly Interspaced short Palindromic Repeats / CRISPR - associated protein 9)

The CRISPR/ Cas 9 system is based on a bacterial defense mechanism that uses molecular scissors to cut and disable invading viruses. Carpenter and doudna discovered that by simplifying the genetic scissors molecular components, they could make it generally applicable for genome editing.

Affiliations

Emmanuelle charpentier is currently the director of the Max planck unit for the science of path agens in Berlin.

Jennifer doudna is a professor at the university of California, Berkeley.

Other information

(i) Early Life & Education :

Emmanerelle charpentier was born on December 11, 1968 in juvisy – sur-orge, frace

She studied biology, microbiology, biochemistry and genetics at the university pierre and Marie curie

Jennifer doudna on the other hand was born in Washington (USA)

(ii) Career and Research

Charpentier's research focused on the mechanisms of bacterial immunity while doudna's work centered on RNA biology.

(iii) Award and Recognition.

Both scientists have got a numerous awards for their work including the Nobel Prize in Chemistry 2020 the Kavli Prize in nano science and the wolf prize in Medicine. They were also recognized as two of the most influential people in the world by time Magazine.

Impact of their work :

The CRISPR- Cas 9 tool has far – reaching implications for various fields including medicine agriculture and biotechnology. It has already been used to develop treatments for inherited diseases and holds promise for advances in human and animal health.

R.Visalatchi
M.Subbulakshmi
III B.Sc., Zoology

Nobel Medal is the name of the medal awarded along with Nobel prize

Computer Science Laurates

ANDREW G. BARTO

Andrew G Barto is a distinguished American computer scientist Renowned for his foundational contributions to reinforcement learning (RL), a pivotal area within artificial intelligence (AI).



In 2024, he was jointly honoured with the ACM.A.M, Turing Award, often regarded as the “Noble Prize of Computing”, along side his former doctoral student Richard S.Sutton.

Early Life and Education :

Barto earned his B.S.C in Mathematics with distinction from the university of Michigan in 1970. Initially studying Naval architecture and engineering, he shifted his focus to computer science after encountering works by Micheal Arbib, Warren Sturgis Mcculloch, and walter pitts. He completed his Ph.D in Computer Science in 1975 with a dissertation on cellular automata as Models of Natural systems.

Academic Career and Research :

In 1977, Barto joined university of Massachusetts Amherst as a post doctoral Research associate, Eventually becoming a Full Professor and serving as department chair from 2007 to 2011.

He co-directed Autonomous learning Laboratory the and Sutton developed key concepts in reinforcement learning.

Barto's Research bridges Machine learning and Neuroscience, Focusing on how agents learn from interactions their Environment his work has significantly influenced All applications like robotics, game - playing and autonomous systems.

Notable Publications :

Reinforced Learning Generations of computer scientists on RL principles.

Handbook of Learning and Approximate Dynamic programming A comprehensive resource on learning algorithms and their applications.

Awards

IEEE Neural Networks society pioneer Award (2004)

JCA Award for Research Excellence (2017)

UMASS Neurosciences lifetime Achievement Award (2019)

P. Selva
III Physics

Nobel prize in Physics, Chemistry awarded by Royal Swedish Academy of Sciences

Nobel Prize

VENKI RAMAKRISHNAN

Venki Ramakrishnan (Born 1952, Chidambaram, Tamil Nadu, India) is an Indian – born physicist and modular biologist.



Who was awarded the 2009 Nobel Prize for chemistry along with American biophysicist and biochemist Thomas sleitz and Isracli protein cryslallographer Ada Yonalh, for this research into the atomic structure.

His contribute to understanding the ribosomes, a molecular machine responsible for protein synthesis.

Venkatraman Ramakrishnan(2009) - Indian origin received Nobel in Chemistrv

Ribosome Research

Ramakrishnan's research focused on the atomic structure of the ribosome a complex molecular machine essential for translating genetic information into proteins.

Nobel Prize

He shared the 2009 Noble Prize in chemistry for his contributions to understanding the ribosomes structure and he was knighted in 2012 for his contributions to molecular biology and served as president of the Royal society from 2015 to 2020.

Other achievements

He is a member of several prestigious scientific organization, including the US National Academy of Science, Leopoldina and EMBO, and a Foreign Member of the Indian National Science Academy.

M. Divya
I M.Sc., Physics

Nobel Laurates – 2023

Name of the noble prize winner :

In 2023 Noble Prize in physics was awarded to Pierre Agostini, Ferenc Krausz and Anne L' Huillier. Their work focused on experimental methods that generate atto second pulses of light, allowing for the study of electron dynamics in matter.

Pierre Agostini :

Pioneered the production and study of atto second laser pulses, demonstrating their ability to capture snapshots of electron movement.

Ferenc Krausz :

Developed methods to isolate single atto second pulses, further advancing the field.

Anne L' Huillier :

Discovered a new effect arising from the interaction of laser light with atoms in a gas, laying the ground work for future research.

Their collective contributions have enabled researchers to study previously unobservable rapid processes within matter. This work opens up new avenues for understanding and controlling electron behaviour, with potential applications in areas like electronics and medical diagnostics.

Nobel prize in economics awarded by the Sveriges Riksbank (Bank of Sweden)



III. Niklas Elmehed © Nobel Prize
Outreach
Pierre Agostini



III. Niklas Elmehed © Nobel Prize
Outreach
Ferenc Krausz



III. Niklas Elmehed © Nobel Prize
Outreach
Anne L'Huillier

Pierre Agostini – France affiliated with ohio state university

Ferenc Krausz -Hungary, affiliated with Max Planck institute of Quantum optics.

Anne L' Huillier -France, affiliated with Lund University.

D. Rigina
II – M.Sc.. Physics

The international committee of the Red Cross won the Nobel peace prize 3 times

Nobel Prize 2023

For the discovery and synthesis of quantum dots, Mounji G. Bawendi, Louis E. Brus, and Alexei I. Ekimov have been given the Noble Prize in Chemistry 2023. These nanoparticles have numerous uses in industries like electronics, cutting – edge surgery, and quantum computing.



Ill. Niklas Elmehed © Nobel Prize
Outreach
Mounji G. Bawendi



Ill. Niklas Elmehed © Nobel Prize
Outreach
Louis E. Brus



Ill. Niklas Elmehed © Nobel Prize
Outreach
Alexei I. Ekimov

The Nobel Laureates :

- ❖ Mounjp G. Bawendi (France) : Professor at HIT, USA
- ❖ Louis E. Brus (USA) : Professor at Columbia University Newyork, USA.
- ❖ Alexei 1. Ekimov (Russia) : Formerly chief scientierol in Newyork, USA.

Quantum Dots

- ❖ Quantum Dots are tiny particles, in the range of a few nanometers.
- ❖ Because of their small size, they have distinctive optical characteristics their structure and atomic composition are same as bulk materials, but the properties of quantum dots depends on size.
- ❖ Altering the size of quantum dots can change their characteristics, they have different colours according to their size.
- ❖ due to dominance of quantum physical forces at the nano scale, material and particles are capable of exhibiting novel, size – dependent properties. On the other hand, gravity and classical physics, law rule at the macroscopic scale, just as they do in our daily lives.

Modern – day applications of quantum dots :

- ❖ To light Computer monitors, television screens, LEDs. More colour and brightness results from combining the colours.
- ❖ Biochemical can map biological tissues using nanoscale – sized quantum dots.
- ❖ To increase the efficiency and absorption of converting solar energy into electricity, quantum dots are also used in photovoltaic cells.

- ❖ Some cancer treatments use Quantum dots for targeted drug delivery and other therapeutic procedures. In the area of nana medicines, thus has additional uses.
- ❖ Quantum dots can be used as security markers on money and documents.
- ❖ They can be used to tog and track objects in general as fluoesced markers.

P. Sundara Gomathy

II M.Sc., Physics

Anne L' Huillier



Anne L' Huillier is a French – Swedish Physicist renowned for her pioneering work in attosecond physics, a field that investigates electron dynamics on time scales of atto seconds (one quintillionth of a second). In 2023, she was awarded the Nobel Prize in Physics, along side Pierre

Agostini and Ferenc Krausz, for developing experimental methods that generate attosecond pulser of light to study electron dynamics in matter.

Early life and Education :

Born on August 16, 1958, in paris France, L' Huillier grew up in the 13th and 14th arrondissements. She pursued her undergraduate studies at the Ecole Normale superieure in Fontenay-aux-Roser and completed her Ph.D., in 1986 at pierre and Marie curie university (now Sorbonne University), focusing on multiphoton and multielectron ionization.

Marie curie was the only person to win Nobel prize in two different fields

Scientific Contributions :

In 1987, she discovered that transmitting infrared laser light through a noble gas resulted in the emission of multiple overtones, laying the groundwork for attosecond pulse generation.

Her work has been instrumental in developing attosecond light sources, enabling the observation of electron movements within atoms and molecules in real time. In 2003 her team achieved a world record by generating a laser pulse lasting just 170 attoseconds.

Academic career and Honors:

Since 1997, L' Huillier has been a professor of atomic physics at Lund university in Sweden, where she leads a research group specializing in attosecond science. Her contributions have earned her numerous accolades.

- ❖ UNESCO L'oreal Award (2011)
- ❖ Wolf Prize in physics (2022)
- ❖ BBVA Foundation Frontiers of knowledge Award (2022)

She is also a member of the Royal Swedish Academy of Sciences and served on the Nobel Committee for Physics from 2007 to 2015.

S.Eswari

III B.Sc., Physics

Nobel Price In Chemistry

Benjamin List and David W.C. Mac Millan jointly won the 2021 Nobel Prize in Chemistry for their development of asymmetric organ catalysis, a method that uses small organic molecules as catalysts, which revolutionized molecule building.



Name : Benjamin List

Field : Chemistry

Year : 2021

Country : Germany

Affiliation : Max-Planck-Institut für Kohlenforschung, Mulheim an der Ruhr, Germany



Name : David W.C MacMillan

Field : Chemistry

Year : 2021

Country : Scotland

Affiliation : A Scottish chemist and a professor at Princeton University

Other Information:

Benjamin List born on January 11, 1968, [Frankfurt am Main](#), [West Germany](#). List received a degree in [chemistry](#) from the [Free University of Berlin](#) in 1993 and a doctorate in

Mahatma Gandhi was nominated for Nobel peace prize but not received

the same subject from the Goethe University of Frankfurt in 1997. That year he started a postdoctoral fellowship at the Scripps Research Institute in La Jolla, California. He became an assistant professor there in 1998. He returned to [Germany](#) in 2003 to become a research group leader at the [Max Planck](#) Institute for Coal Research, [Mülheim an der Ruhr](#), and in 2005 he became director of the institute.

Research Areas: Reaction Design, New reactions with organocatalysts. He received many awards. Some of the them are given below.

- NaFoG-Award from the city of Berlin -1994
- Synthesis –Synlett Journal Award – 2000
- Carl-Duisberg Memorial Award of the German Chemical Society – 2003
- Lectureship Award – 2005
- Novaritis Young Investigator Award – 2005

MacMillan was born in [Bellshill](#), [North Lanarkshire](#), [Scotland](#), in 1968 and grew up in nearby [New Stevenston](#). He attended the local state-funded schools, New Stevenston Primary and Bellshill Academy, and credited his Scottish education and Scottish upbringing for his success. He received his undergraduate degree in chemistry at the [University of Glasgow](#), where he worked with Ernie Colvin. He earned his Ph.D. in 1996.

MacMillan was knighted in the 2022 Birthday Honours for services to chemistry and science.

- 2002 – Sloan Research Fellowship
- 2004 – Corday-Morgan medal of Royal Institute of Chemistry
- 2012 – Elected a Fellow of the Royal Society (FRS)
- 2012 – Elected as a member of the American Academy of Arts and Sciences
- 2013 – Elected a Corresponding Fellow of the Royal Society of Edinburgh (FRSE)
- 2015 – Harrison Howe Award
- 2017 – Ryoji Noyori Prize
- 2018 – Elected a member of the National Academy of Sciences
- 2024 – Honorary Ph.D, North Carolina State University

Description about their contribution:

In 2000, Benjamin List and David MacMillan, independent of each other, developed a new type of catalysis that builds upon small organic molecules. An important capacity of many such catalysts is the ability to build only one of two mirror image variants of a molecule.

**S.Udhaya Lakshmanan &
S.Muthukrishnan**
II B.Sc. Mathematics

Nobel Prize Winners 2024 Physics - John.J.Hopfield, Gepffery E.Hinton



Prize Motivation - For foundational discoveries and inventions that enable machine learning with Artificial Neural Networks(ANN). ANN technology was originally inspired by the structure of the brain. In ANN, the brain's neurons are represented by nodes that have different values.

John.J.Hopfield

Born: 15 July 1933, Chicago, IL, USA

Affiliation at the time of the award: Princeton University, Princeton, NJ, USA

Contribution

In 1982, John Hopfield invented a network that uses a method for saving and recreating patterns. He found inspiration in physics models of how many small parts in a system affect the system as a whole. The invention became important, for example, in image analysis.

The oldest Nobel laureate - John B.Goodenough

Geoffrey Hinton

Born: 6 December 1947, London, United Kingdom

Affiliation at the time of the award: University of Toronto, Toronto, Canada

Contribution

In 1983–1985, Geoffrey Hinton used tools from statistical physics to create the Boltzmann machine, which can learn to recognise characteristic elements in a set of data. The invention became significant, for example, in classifying and creating images.

M.Keerthika, P.Mariammal

III B.Sc Computer Science

Chemistry – David Baker, Demis Hassabis, John M. Jumper



Prize Motivation: Work on solving the 50-year-old protein structure prediction problem using AI. Specifically, Hassabis and Jumper, alongside David Baker, developed the AlphaFold AI system, which revolutionized protein structure prediction, impacting fields like drug discovery, environmental technology and complex disease understanding like parkinson's.

The AlphaFold AI model, can accurately predict the 3D structure of proteins from their amino acid sequence. This prediction is crucial for understanding how proteins function and for designing new drugs and therapies.

David Baker

Born: 1962, Seattle, WA, USA.

Affiliation at the time of the award: University of Washington, Seattle, WA, USA.

Goodenough awarded for his work in developing Lithium-ion-batteries

Contribution:

Baker's Nobel Prize recognizes his innovative work in computational protein design

Demis Hassabis

Born: 27 July 1976 North London

Affiliation at the time of the award: *Google DeepMind, London, United Kingdom.*

Contribution:

As co-founder and CEO of DeepMind, a Google AI research company, Hassabis played a key role in the development and deployment of AlphaFold an AI model. With its help, they have been able to predict the structure of virtually all known proteins. AlphaFold2 has been widely used in many areas, including research into pharmaceuticals and environmental technology.

John M.Jumper

Born: 1985, Little Rock, Arkansas, U.S.

Affiliation at the time of the award: *Google DeepMind, London, United Kingdom.*

Contribution:

John Jumper developed to advance AI in solving the protein structure prediction challenge with high accuracy. This achievement was a significant step forward in solving a longstanding challenge in biology and chemistry.

A.Devi, B.Esakkiammal

III B.Sc Computer Science

John Bardeen awarded Nobel prize in physics twice

Physiology or Medicine – Victor Ambros, Gary Ruvkun



Prize Motivation: Discovered the first known microRNA(miRNA) and its role in post-transcriptional gene regulation..

Victor Ambros

Born: 1 December 1953, Hanover, NH, USA

Affiliation at the time of the award: UMass Chan Medical School, Worcester, MA, USA

Gary Ruvkun

Born: March 26, 1952 USA

Affiliation at the time of the award: Investigator at the Department of Molecular Biology at Massachusetts General Hospital (MGH) and a professor of Genetics at Harvard Medical School.

Contribution: Ruvkun, along with Victor Ambros, identified lin-4, the first microRNA, and later discovered let-7, another important microRNA.

Sir.C.V. Raman(1930) received Nobel first ever in physics from India

Their research demonstrated how microRNAs regulate the translation of target messenger RNAs through imperfect base-pairing.

They also explored the conserved nature of let-7 across animal phylogeny, including in humans.

Their work revealed a new dimension of RNA regulation and its role in various biological processes, including development and aging.

Ruvkun's research also focused on insulin-like signalling in the regulation of aging and metabolism.

S.Kannan,

III B.Sc Computer Science

Sir.C.V. Raman received Nobel for his work on the scattering of light and the discovery of the effect

Literature - Han Kang



Prize Motivation: Work in exploring the impact of past tragedies and societal expectations, making her the first South Korean and first Asian woman to receive the award.

Born: November 27, 1970, South Korean

Affiliation at the time of award: South Korean

author and writer

Contribution:

She is known for her unique, experimental style that blends poetry and prose, exploring the depths of human existence.

Her work often deals with themes of violence, memory, and the human body

Swetha

II B.Sc Computer Science

Peace - Nihon Hidankyo



Founded: 1956

Residence at the time of the award: Tokyo, Japan

Prize motivation: For its efforts to achieve a world free of nuclear weapons and for demonstrating through witness testimony that nuclear weapons must never be used again.

The two American atomic bombs that were dropped over Hiroshima and Nagasaki in August 1945 killed approximately 120 000 people. A comparable number died later of burn and radiation injuries. It is estimated that 650 000 people survived the attacks. These survivors are known as Hibakusha in Japanese.

In 1956, local Hibakusha associations along with victims of nuclear weapons tests in the Pacific formed The Japan Confederation of A- and H-Bomb Sufferers Organisations, shortened in Japanese to Nihon Hidankyo. This grassroots movement soon became the largest and most

Mother Teresa(1979) - Kolkata - Received Nobel peace prize

widely representative Hibakusha organisation in Japan.

Nihon Hidankyo has two main objectives. The first is to promote the social and economic rights of all Hibakusha, including those living outside Japan. The second is to ensure that no one ever again is subjected to the catastrophe that befell the Hibakusha.

Through personal witness statements, Nihon Hidankyo has carried out extensive educational work on the catastrophic humanitarian consequences of the use of nuclear weapons. Hence the motto “No more Hibakusha”.

Madhuleha

I B.Sc Computer Science

**Economic Sciences –
Daron Acemoglu, Simon Johnson, James
A.Robinson**



Prize Motivation: Research on the relationship between societal institutions and prosperity. Their work focuses on understanding why some countries are more prosperous than others, highlighting the importance of inclusive political and economic institutions.

Daron Acemoglu

Born: Istanbul, Turkey, in 1967

Affiliation at the time of award: Turkish-American economist, a Professor of Economics at Massachusetts Institute of Technology (MIT), and a leading expert on the importance of institutions for economic development,

Simon Johnson

Born: Sheffield, England, on January 16, 1963

Affiliation at the time of award: Professor at the Massachusetts Institute of Technology (MIT). Specifically, he held the position of a MIT

Subramanian Chandrashekar(1983) - Indian origin received Nobel in

Sloan School of Management and was also a research affiliate at Blueprint Labs and co-director of MIT's Shaping the Future of Work Initiative.

James A. Robinson

Born in 1960

Affiliation at the time of award: The University of Chicago. Specifically, he held the position of the Rev. Pearson Professor of Global Conflict Studies and a University Professor at the Harris School of Public Policy.

Contribution: Work on political economy, economic development, and the role of institutions in shaping economic outcomes, especially how these institutions can either foster or hinder growth.

Vigneshwaran,

I B.Sc Computer Science

Nobel Prize winner in Literature



Name: Abdulrazak Gurnah

Field : Literature

Year: 2021

Country: Zanzibar (now part of Tanzania)

In 2021, Tanzanian-born British novelist Abdulrazak Gurnah was awarded the Nobel prize in Literature for his uncompromising exploration of the effects of colonialism and the fate of refugees. His works illuminate themes of migration, identity and the lasting impact of colonial histories.

Early life and background

He was born on 20 December 1948 in sultanate of Zanzibar. Gurnah was forced to flee to Britain in the late 1960s due to political unrest. This experience of exile has deeply influenced his writing. Which often explores the struggles of displaced individuals and their search for belonging.

Notable Works

1. Paradise - A story set in colonial Zanzibar, this novel explores the complexities of colonial relationships and the impact of cultural and racial differences.
2. By the Sea - This work narrates the journey of

a refugee in England, showcasing the dislocation felt by those who have been forced to flee their homes.

3. Afterlives - Gurnah's most recent novel, which focuses on the aftermath of German colonialism in East Africa and the struggles of those caught in its violent wake.

Impact and recognition

While Gurnah has long been a respected voice in Literature, his Nobel prize win brought his work to global attention. His stories, rich with empathy and complexity, provide a powerful narrative for those who experience displacement. Through his writing, he has become a significant figure in post colonial literature, offering critical insights into the lives of those often left unheard.

Conclusion

Abdulrazak Gurnah's Nobel Prize win is a recognition of his exceptional storytelling and his ability to address urgent global issues, including migration, identity, and the legacy to colonialism. His works continue to resonate with leaders worldwide, offering bog a historical perspective and a deeply human narrative that connects us all.

S.Pavithra

III B.Sc. Mathematics

Nobel Prize In Peace

The Norwegian Nobel Committee has decided to award the Nobel Peace Prize for 2021 to Maria Ressa and Dmitry Andreyevich Muratov for their efforts to safeguard freedom of expression, which is a precondition for democracy and lasting peace. Ms Ressa and Mr Muratov are receiving the Peace Prize for their courageous fight for freedom of expression in the Philippines and Russia. At the same time, they are representatives of all journalists who stand up for this ideal in a world in which democracy and freedom of the press face increasingly adverse conditions.



Name: Maria Ressa

Year: 2021

Country: Philippines

Field: Peace



Name: Dmitry Andreyevich
Muratov

Year: 2021

Country: Russia

Field: Peace

Maria Ressa uses freedom of expression to expose abuse of power, use of violence and growing authoritarianism in her native country, the Philippines. In 2012, she co-founded Rappler, a digital media company for investigative journalism, which she still heads. As a journalist and the Rappler's CEO, Ressa has shown herself to be a fearless defender of freedom of expression. Rappler has focused critical attention on the Duterte regime's controversial, murderous anti-drug campaign. The number of deaths is so high that the campaign resembles a war waged against the country's own population. Ms Ressa and Rappler have also documented how social media is being used to spread fake news, harass opponents and manipulate public discourse. She is the author of three books. Seeds of Terror, From Bin Laden to Face book and How to Stand Up To a Dictator.

Dmitry Andreyevich Muratov has for decades defended freedom of speech in Russia under increasingly challenging conditions. In 1993, he was one of the founders of the independent newspaper Novaya Gazeta. Since 1995 he has been the newspaper's editor-in-chief for a total of 24 years. Novaya Gazeta is the most independent newspaper in Russia today, with a fundamentally critical attitude towards power. The newspaper's fact-based journalism and professional integrity have made it an important source of information

on censurable aspects of Russian society rarely mentioned by other media. Since its start-up in 1993, Novaya Gazeta has published critical articles on subjects ranging from corruption, police violence, unlawful arrests, electoral fraud and “troll factories” to the use of Russian military forces both within and outside Russia.

Novaya Gazeta’s opponents have responded with harassment, threats, violence and murder. Since the newspaper’s start, six of its journalists have been killed, including Anna Politkovskaya who wrote revealing articles on the war in Chechnya. Despite the killings and threats, editor-in-chief Muratov has refused to abandon the newspaper’s independent policy. He has consistently defended the right of journalists to write anything they want about whatever they want, as long as they comply with the professional and ethical standards of journalism.

Free, independent and fact-based journalism serves to protect against abuse of power, lies and war propaganda. The Norwegian Nobel Committee is convinced that freedom of expression and freedom of information help to ensure an informed public. These rights are crucial prerequisites for democracy and protect against war and conflict. The award of the Nobel Peace Prize to Maria Ressa and Dmitry Muratov is intended to underscore the importance of

protecting and defending these fundamental rights.

Without freedom of expression and freedom of the press, it will be difficult to successfully promote fraternity between nations, disarmament and a better world order to succeed in our time. This year's award of the Nobel Peace Prize is therefore firmly anchored in the provisions of Alfred Nobel's will.

S.Ganesh Kumar & S.K.Sabari

II M.Sc. Mathematics

Noble Prize In Economics



Guido Imbens, David Card and Joshua Angrist are renowned economists who made ground breaking contribution to the field of economics, particularly in labour economics and causal relationships.

NAME : Guido Imbens

COUNTRY: Dutch – American

Year: 2021

Born on October 3, 1963, in Netherlands.

- Professor of Economics, Stanford University
- Senior Fellow, Standard Institute for Economic Research.
- Ph.D. in Economics, Brown University (1991)
- Honorary Doctorte University of St.Gauen (2014)
- Horace Mann Medal, Brown University Graduate School (2017)
- Doctorate of Humane Letter, Brown University (2022)
- Great Immigrants Award, Carnegie corporation of NewYork.
- Honorary Doctorate, Erasmus University Rotterdam(2023)



NAME: David card

COUNTRY: Canadian – American

Year: 2021

Born on 1956 in Guelph, Ontario, Canada

David Card's works focused on empirical contributions

to labour economics, exploring topics like immigration, minimum wage and education.

- Class of 1967 Professor of Economics, University of California, Berkeley.
- Director, labor study program , National Bureau of Economic Research.
- Ph.D. in Economics, Princeton University (1983)
- John Bates Clark Medal (1995)
- IZA Labor Economics Award (2006)
- Frisch Medal (2008)
- BBVA Foundation Frontiers of Knowledge Award(2014)
-



NAME: Joshua Angrist

COUNTRY: Israel – American

Year: 2021

Born on September 18, 1960, in Columbus, Ohio, USA.

Joshua Angrist and Guido Imbens made significant methodological contributions to the analysis of causal relationships.

- Ford Professor of Economics, Massachusetts Institute of Technology.
- Research Associate, National Bureau of Economic Research.
- Research Fellow, Institute of Labor Economics (IZA)
- Ph.D. in Economics, Princeton University (1989)
- John Von Neumann Award (2011)
- Honorary Doctorate, University of St. Gallen (2007)
- Fellow, American Academy of Arts and Sciences (2006)

S. Petchiammal & S. Rajsundar

I - M.Sc. Mathematics

Nobel Price In Physics In 2021

Three Laureates share this year's Nobel Prize in Physics for their studies of complex phenomena. **Syukuro Manabe** and **Klaus Hasselmann** laid the foundation of our knowledge of the Earth's climate and how humanity influences it. **Giorgio Parisi** is rewarded for his revolutionary contributions to the theory of disordered and random phenomena.

1. **Name:** Klaus Hasse Lman

Field: Physics

Country: Germany

Affiliations: Max Planck
Institute for Meteorology,
Hamburg,
Germany



2. **Name:** Syakuro Manabe

Field: Physics

Country: Japan

Affiliation: Princeton University
USA



2. **Name:** Giorgco Parisi

Field: Physics

Country: Italay

Affiliation: Sapienza University
of Rome, Italy



Description about their contribution

The royal Swedish academy of science has decided to award the noble prize in physics 2021 to groundbreaking contributions to our understanding of complex physical system with one half jointly to Syukuro Manabe and Klaus Hasse Lman and the other half to Giorgco Parisi Our world is full of complex systems characterised by randomness and disorder. One complex system of vital importance to humankind is Earth's climate.

Syukuro Manabe demonstrated how increased levels of carbon dioxide in the atmosphere lead to increased temperatures at the surface of the Earth. In the 1960s, he led the development of physical models of the Earth's climate and was the first person to explore the interaction between radiation balance and the vertical transport of air masses. His work laid the foundation for the development of current climate models.

In the 1970s, **Klaus Hasselmann** created a model that links together weather and climate, thus answering the question of why climate models can be reliable despite weather being changeable and chaotic. He also developed methods for identifying specific signals that both natural phenomena and human activities imprint in the climate. An important result is that the increased temperature in the atmosphere is due to human emissions of carbon dioxide.

Around 1980, **Giorgio Parisi** discovered hidden patterns in disordered complex materials. His discoveries are among the most important contributions to the theory of complex systems. They make it possible to understand and describe many different and apparently entirely random materials and phenomena, not only in physics but also in other, very different areas, such as mathematics, biology, neuroscience and machine learning.

M. Sudharsana & V. Muthu Jeya Shree

I B.Sc. Mathematics

The Noble Prize Winners In Physiology/ Medicine

The 2021 Noble Prize in Physiology or Medicine was awarded jointly to **David Julius** and **Ardem Patapoutian** for their discoveries of receptors the nervous system senses heat, cold, and mechanical stimuli.



Name : David Julius

Field : Physiology, Biochemistry & Neuroscience

Year : 2021.

Country : New York City, USA.

Affiliation: University of California, San Francisco, CA, USA

Julius was born on November 4, 1955 in New York City. He attended Abraham Lincoln High School. He earned his undergraduate degree from Massachusetts Institute of Technology in 1977. He attained his doctorate from University of California Berkeley. He completed his post-doctoral training with Richard Axel at Columbia University where he cloned and characterized the serotonin 1c receptor. He is a professor at the University of California, San Francisco.

Other Awards:

- **Julius** won the 2010 Shaw Prize in Life Science and Medicine.
- The 2020 Breakthrough Prize in life Sciences.
- In 2020 he was awarded the Kavli prize.



Name : Ardem Patapoutian

Field : Molecular biology,
Neuroscience

Country : Lebanon

Year : 2021

Affiliation: Scripps Research,
La Jolla, CA, USA; Howard Hughes Medical
Institute, USA

Ardem Patapoutian was born on 1967, Beirut, Lebanon. He is a Lebanese-born American molecular biologist and neuroscientist. He attended the Demirdijian and Hovagimian American schools in Beirut. He enrolled at the American University of Beirut for a year before emigrating to the United States in 1986. He received B.S. degree in cell and developmental biology from the University of California, Los Angeles in 1990 and a Ph.D., degree in biology from the California Institute of Technology in 1996. Patapoutian worked with Louis F. Reichardt at the University of California, San Francisco. In 2000, he became an assistant Professor at the Scripps Research Institute. Between 2000 and 2014 he had an additional research position for the Novartis Research Foundation. Since 2014 Patapoutian has been an investigator for the Howard Hughes Medical Institute.

Other awards:

- 2020 Kavli Prize in neuroscience.
- 2019 Rosenstiel Award.

Reason for the Prize:

Their discoveries related to receptors for temperature and touch, which are crucial for understanding how we sense the world around us.

Specific Discoveries:

- David Julius: Identified the nerve sensors that allow the skin to respond to heat, using capsaicin, the active component in chili peppers.
- Ardem Patapoutian: Discovered the ion channels activated by mechanical stimuli, which are essential for sensing touch.

M.Balamurugan & S.Suresh

III B.Sc. Mathematics

வாழ்த்துக்கள்

பல்கலைக்கழகத் தேர்வில்
வெற்றிவாகை சூட
மாணவர்கள்
அனைவரையும்
விஞ்ஞானப்பூக்கள்
வாழ்த்துகிறது



அடுத்த பருவத்தில் மலரவிருக்கும்
விஞ்ஞானப்பூக்கள் 33வது இதழுக்கான
புதிய படைப்புகளை புதிய சிந்தனையுடன்
தயாரித்து மலர் பொறுப்பாளர்களிடம்
சமர்ப்பிக்கவும்....

நன்றி

PONGAL CELEBRATIONS - 2025

