Rayat Shikshan Sanstha's

D. P. Bhosale College, Koregaon

Department of Physics

2021-2022

Student Centric Activities

1. Home Assignment : 06

Sr. No.	Class	Date	No. of Home Assignments	No. of Beneficiaries
1	B.Sc-III	17/05/2022	4	13
2	B.Sc-II	21/05/2022	2	87
3	B.Sc-I	20/05/2022	2	110
4	B.Sc-III	18/01/2022	4	13
5	B.Sc-II	19/01/2022	2	87
6	B.Sc-I	20/01/2022	2	110

2. Question Bank :06

Sr. No.	Class	Date	No. of Beneficiaries
1	B.Sc-III	17/05/2022	13
2	B.Sc-II	21/05/2022	87
3	B.Sc-I	20/05/2022	110
4	B.Sc-III	18/01/2022	13
5	B.Sc-II	19/01/2022	87
6	B.Sc-I	20/01/2022	110

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3. Publication of wall paper : 13

Sr. No.	Class	Date	Name of the student	Title of the Article
1	B.Sc-III	26/01/2022	Dhole Aniket Sanjay	Nobel Prizes in Physics
2	B.Sc-III	26/01/2022	Jadhav Pranita Duryodhan	Nobel Prizes in Physics
3	B.Sc-III	26/01/2022	Jagadale Mayuri Tatyaba	Nobel Prizes in Physics
4	B.Sc-III	26/01/2022	Kadam Rushikesh Saudagar	Nobel Prizes in Physics(Dr. Syukuro Manabe)
5	B.Sc-III	26/01/2022	Kadam Sanket Ashok	Nobel Prizes in Physics(Dr. Syukuro Manabe)
6	B.Sc-III	26/01/2022	Katkar Omkar Jotiram	Nobel Prizes in Physics(Dr. Syukuro Manabe)
7	B.Sc-III	26/01/2022	Kodulkar Swati Shrikrushna	Nobel Prizes in Physics (Klaus Hasselmann)
8	B.Sc-III	26/01/2022	Mane Mayuri Jaysing	Nobel Prizes in Physics (Klaus Hasselmann)
9	B.Sc-III	26/01/2022	Pawar Kshitija Vikas	Nobel Prizes in Physics (Klaus Hasselmann)
10	B.Sc-III	26/01/2022	Shinde Dhiraj Dashrath	Nobel Prizes in Physics (Dr. Girgio Parisi)
11	B.Sc-III	26/01/2022	Shinde Poonam Vikas	Nobel Prizes in Physics (Dr. Girgio Parisi)
12	B.Sc-III	26/01/2022	Ubale Ashish Bajirao	Nobel Prizes in Physics (Dr. Girgio Parisi)
13	B.Sc-III	26/01/2022	Yadav Gauri Kiran	Nobel Prizes in Physics (Dr. Girgio Parisi)

D.P. BHOSALE COLLEGE KOREGAON

Head
Department of Physics
D. P. Bhosale College, Koregaon

Wallpaper-Spectrum

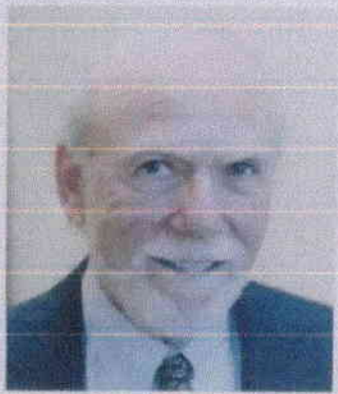
26th January, 2022


PHYSICS
LAB - I
C-1-1
AI TRIPLE CAMERA
Shot by Pranali


PHYSICS
LAB - I
C-1-1
AI TRIPLE CAMERA
Shot by Pranali

Nobel Prize In Physics 2018-2022

Dr.Kip Thorne

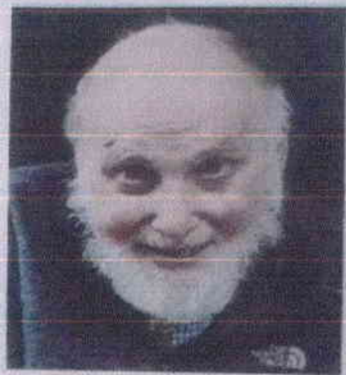


Dr.Rainer Weiss

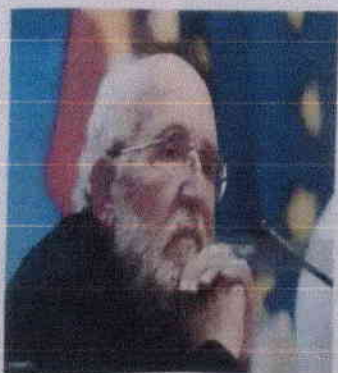
Dr.Barry Barish

Dr.Gerard Mourou

Dr.Donna Strikland



Dr.Arthur Askin



Dr.Jim Preeble

Dr.Michel Mayur

Dr.Didier Queloz

Dr. Syukuro Manabe

receives Nobel Prize in Physics- 2021

On "Physical modelling of Earth's climate, quantifying variability and reliably predicting global warming"

Syukuro Manabe

The Nobel Prize in Physics 2021

Born: 21 September 1931, Shingu, Ehime Prefecture, Japan

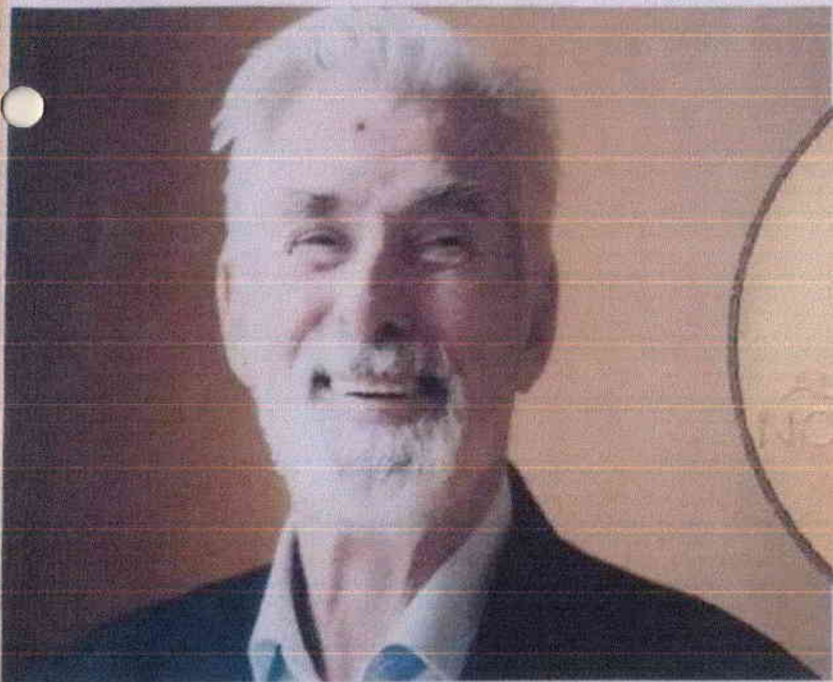
Affiliation at the time of the award: Princeton University, Princeton, NJ, USA

Prize motivation: "for the physical modelling of Earth's climate, quantifying variability and reliably predicting global warming."

Prize share: 1/4

Klaus Hasselmann
receives Nobel Prize in Physics- 2021

On "for the physical modelling of Earth's climate, quantifying variability and reliably predicting global warming."



Klaus Hasselmann

The Nobel Prize in Physics 2021

Born: 25 October 1931, Hamburg, Germany

Affiliation at the time of the award: Max Planck Institute for Meteorology, Hamburg, Germany

Prize motivation: "for the physical modelling of Earth's climate, quantifying variability and reliably predicting global warming."

Prize share: 1/4

Dr. Giorgio Parisi

receives Nobel Prize in Physics- 2021

On "for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales"

Giorgio Parisi

The Nobel Prize in Physics 2021

Born: 4 August 1948, Rome, Italy

Affiliation at the time of the award: Sapienza University of Rome, Rome, Italy

Prize motivation: "for the discovery of the interplay of disorder and fluctuations in physical systems from atomic to planetary scales."

Prize share: 1/2

All complex systems consist of many different inter-acting parts. They have been studied by physicists for a couple of centuries, and can be difficult to describe mathematically – they may have an enormous number of components or be governed by chance. They could also be chaotic, like the weather, where small deviations in initial values result in huge differences at a later stage. This year's Laureates have all contributed to us gaining greater knowledge of such systems and their long-term development.

The Earth's climate is one of many examples of complex systems. Manabe and Hasselmann are awarded the Nobel Prize for their pioneering work on developing climate models. Parisi is rewarded for his theoretical solutions to a vast array of problems in the theory of complex systems.

Syukuro Manabe demonstrated how increased concentrations 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 climate models.

Weather is chaotic

About ten years after Manabe, **Klaus Hasselmann** succeeded in linking together weather and climate by finding a way to outsmart the rapid and chaotic weather changes that were so troublesome for calculations. Our planet has vast shifts in its weather because solar radiation is so unevenly distributed, both geographically and over time. Earth is round, so fewer of the sun's rays reach the higher latitudes than the lower ones around the Equator. Not only this, but the Earth's axis is tilted, producing seasonal differences in incoming radiation. The differences in density between warmer and colder air cause the colossal transports of heat between different latitudes, between ocean and land, between higher and lower air masses, which drive the weather on our planet.

As we all know, making reliable predictions about the weather for more than the next ten days is a challenge. Two hundred years ago, the renowned French scientist, Pierre-Simon de Laplace, stated that if we just knew the position and speed of all the particles in the universe, it should be possible to both calculate what has happened and what will happen in our world. In principle, this should be true; Newton's three-century old laws of motion, which also describe air transport in the atmosphere, are entirely deterministic – they are not governed by chance.

However, nothing could be more wrong when it comes to the weather. This is partly because, in practice, it is impossible to be precise enough – to state the air temperature, pressure, humidity or wind conditions for every point in the atmosphere. Also, the equations are nonlinear; small deviations in initial values can make a weather system evolve in entirely different ways. Based on the question of whether a butterfly flapping its wings in Brazil could cause a tornado in Texas, the phenomenon was named the butterfly effect. In practice, this means that it is impossible to produce long-term weather forecasts – the weather is chaotic; this discovery was made in the 1960s by the American meteorologist Edward Lorenz, who laid the foundation of today's chaos theory.

Source: Manabe and Wetherald (1967) Thermal equilibrium of the atmosphere with a given distribution of relative humidity, Journal of the atmospheric sciences, Vol. 24, Nr 3, May.

The model confirmed that this heating really was due to the increase in carbon dioxide, because it predicted rising temperatures closer to the ground while the upper atmosphere got colder. If variations in solar radiation were responsible for the increase in temperature instead, the entire atmosphere should have been heating at the same time.

Sixty years ago, computers were hundreds of thousands of times slower than they are now, so this model was relatively simple, but Manabe got the key features right. You must always simplify, he says. You cannot compete with the complexity of nature – there is so much physics involved in every raindrop that it would never be possible to compute absolutely everything. The insights from the onedimensional model led to a climate model in three dimensions, which Manabe published in 1975; this was yet another milestone on the road to understanding the climate's secrets.

SPECTRUM