


# Lecture on Nobel Prize in Physiology or Medicine 2017

Date: 24<sup>th</sup> February, 2018

Participants: 119

Resource person: Prof. Sheeba Vasu, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore





**:Speaker:**  
Prof. Sheeba Vasu  
Jawaharlal Nehru  
Centre for  
Advanced Scientific  
Research (JNCASR),  
Bangalore

**:Date:**  
24<sup>th</sup> February, 2018  
Saturday

**:Time:**  
11:30 am

**:Venue:**  
Taramoti Hall  
Sir P. T. Sarvajanik  
College of Science,  
Surat





Department of Zoology

**Sir P. T. Sarvajanik College of Science**

Cordially invites you to  
The Public Lecture

**Circadian clocks: internal clocks  
and their underlying cellular and  
molecular basis**

**Abstract**

Circadian clocks are endogenous mechanisms by which almost all living organisms on planet earth achieve synchrony with the cycles of day and night. For several decades, clocks had been studied from the point of view of physical oscillators. With the advent of modern genetic and molecular methodologies that were especially suited for studies on the common fruitfly *Drosophila melanogaster*. This year's Nobel Prize winners for Physiology or Medicine harnessed these methods to unravel a mechanism involving transcription and translation based feed-back loops being central to clocks in flies. Over the years such a mechanism was found to be present across organisms ranging from bacteria, fungi, other insects, rodents and even humans. Clocks are known to impact almost every biological process from eating, sleeping, hormonal balance, mood, alertness and reproductive output. In an age of increased presence of light at night, rapid globalization and resultant need for shift work, increased trans-continental travel, the importance of our daily clocks and means by which we may minimally disrupt it becomes all the more relevant.

## Brief report

On 24<sup>th</sup> February, 2018, Department of Zoology had organized a lecture on the Nobel Prize in Physiology or Medicine 2017 awarded jointly to Jeffrey C. Hall, Michael Rosbash and Michael W. Young “for their discoveries of molecular mechanisms controlling the circadian rhythm”. Prof. Sheeba Vasu was invited to deliver a lecture on the same. She gave us the insight of this landmark achievement. Prof. Vasu explained that circadian clocks are endogenous mechanisms by which almost all the living organisms achieve synchrony with the cycles of day and night. She elaborated that using fruit flies as a model organism, the Nobel laureates isolated a gene that controls the normal daily biological rhythm. They showed that this gene encodes a protein that accumulates in the cell during the night, and it is then degraded during the day. Subsequently, they identified additional protein components of this machinery, exposing the mechanism governing the self-sustaining clockwork inside the cell. and recognized that biological clocks function by the same principles in cells of other multicellular organisms, including humans. This work lead them to win the Nobel prize. It was an amazing session and at the end of the lecture, Prof. Vasu interacted with students and answered their queries satisfactorily. She also provided some reference articles to a few students who took keen interest in this topic.