INDIAN ACADEMY OF SCIENCES
BENGALURU

SYMPOSIUM

(*Convened by: Professor M R N Murthy, Indian Institute of Science, Bengaluru*)

Seminar Hall, Department of Biochemistry
Indian Institute of Science, Bengaluru
27 June 2019

1330–1430 **Codes for the making of a rice flowering stem: roles for evolutionarily conserved transcription factors**

Professor Usha Vijayraghavan
Department of MCB, IISc, Bengaluru

1430–1530 **Some lessons in probability**

Professor Manjunath Krishnapur
Department of Mathematics, IISc, Bengaluru

1530–1545 **Tea Break**

1545–1645 **Training science teachers of all levels: an experiment at IISc Challakere campus**

Professor M S Hegde
IISc, Challakere Campus at Kudapura

ABSTRACTS

Codes for the making of a rice flowering stem: roles for evolutionarily conserved transcription factors Professor Usha Vijayraghavan, Department of MCB, IISc, Bengaluru

Unravelling the logic behind the development of multicellular organisms from a fertilised single cell has fascinated philosophers for millennia. In more recent times biologists use the tools of genetics and developmental biology to decipher the complex interactions between genes and environment in the making of the striking structure and patterns we see in the mature organism. Studies in convenient laboratory organisms, illustrate how a few key 'master' regulators can have large-cascading- and cumulative-effects on how growth and the emergence of form takes place. I will review the cumulative knowledge on developmental roles for regulators of flowering using *Arabidopsis* and rice as models.

Some lessons in probability Professor Manjunath Krishnapur, Department of Mathematics, IISc, Bengaluru

Probability is a part of mathematics, and at the same time intimately connected to applications. The history of probability is replete with problems coming from physics, biology, economics and other fields of physical and social sciences. In fact, many of the developments in probability were motivated by questions from other fields. In this lecture, we shall survey some basic ideas in probability (and the closely related field of statistics) and the insights they bring into analyzing various situations. The lecture is aimed at teachers of undergraduates in the Sciences and mathematics.

Training science teachers of all levels: An experiment at IISc Challakere campus Professor M S Hegde, IISc, Challakere Campus at Kudapura

Knowledge imparted to the students is proportional to teacher's knowledge. One teacher teaches about 120 to 150 students every year. Therefore, if the teacher is equipped with higher knowledge, thousands of students get benefitted by one trained teacher in his career. If India has to train 1 crore students, only one lakh teachers need to be trained. Science should be learnt by doing experiments and mathematics by solving problems. Can we have a training program with this broad idea so that large number of students acquire more and proper knowledge? IISc at its Challakere campus has created a Talent Development Center (TDC) where the above idea is implemented. Science and Mathematics teachers teaching for High School, PU (11 and 12 Class), BSc and MSc students are trained in four subjects: Physics, Chemistry, Biology and Mathematics. This whole idea is an experiment. The result is: percentage of students in their SSLC examination scoring more than 70% marks in science and mathematics has increased by over 15%. In this lecture, we present the method of training science teachers and the results of this giant experiment for India to adopt.