

# INDIAN INSTITUTE OF ASTROPHYSICS

An autonomous Institute under the Department of Science and Technology



## Founder's Day Lecture

by

**Professor Krishnaswamy VijayRaghavan, FRS**  
Principal Scientific Advisor  
Government of India

**The development of the ability to move**



Link for Online-talk: <https://www.youtube.com/c/IIABengaluru/>

**10<sup>th</sup> August 2020 – 10:30 hrs**

**Indian Institute of Astrophysics  
Koramangala, Bengaluru – 560034**

## Professor Krishnaswamy VijayRaghavan, FRS

Krishnaswamy VijayRaghavan was born on 3 February 1954; did his BTech (Chemical Engineering) and MTech degrees from IIT Kanpur, and PhD (Molecular Biology) from Bombay University while working at the Tata Institute of Fundamental Research (TIFR). Thereafter, he was Research Fellow and Senior Research Fellow at the California Institute of Technology, USA.

Krishnaswamy VijayRaghavan is a geneticist and developmental biologist who has deepened our understanding of muscle development through studies performed in the fruit fly, *Drosophila*. He identified the mechanisms that control the nervous system and muscles during development and investigated how they control movement. He examines how a set of control genes called the Hox genes oversee the specialisation of muscles and nerves during the development of an embryo. In particular, VijayRaghavan's work has contributed to our knowledge of the molecular and cellular steps in the growth of flight muscle. He investigates how neural networks are constructed during development and how this leads to the muscle's ability to produce coordinated movement.

VijayRaghavan's contributions have brought international recognition and he is currently serving as the Principal Scientific Advisor to the Government of India. Professor VijayRaghavan served as the Secretary, Department of Biotechnology, Government of India. Prior to that, he was the Director of the National Centre for Biological Sciences (NCBS) of the Tata Institute of Fundamental Research (TIFR) and the interim head of The Institute of Stem Cell Biology and Regenerative Medicine (inStem) a new autonomous institute of the Department of Biotechnology (DBT).

Professor VijayRaghavan has received numerous honours and awards. He was conferred an honorary Doctor of Science degree by the University of Edinburgh in 2011. He is a J. C. Bose Fellow of the Department of Science and Technology. He gave the J.C. Bose Memorial Lecture at the Royal Society in 2010, was awarded the inaugural *Infosys* Prize in Life Sciences 2009, The Shanti Swarup Bhatnagar Prize, India's most prestigious science award, in 1998. He is a Distinguished Alumnus of the Indian Institute of Technology, Kanpur, the prestigious Institute's highest honour and was recognized as one of its top 50 alumni ever in the Institute's golden jubilee year. He is a fellow of The Indian National Science Academy and The Indian Academy of Sciences and served on the Council of the latter. VijayRaghavan is the only Indian elected as an Associate Member of the European Molecular Biology Organization. In 2012 VijayRaghavan was elected a Fellow of the Royal Society. He was awarded the 'Padma-Shri' in 2013, by the Government of India. He was elected a Foreign Associate of the US National Academy of Sciences in 2014.

## *FOUNDER'S DAY – 10 AUGUST*



### **Dr Manali Kallat Vainu Bappu (1927 – 82)**

In 1971, the Government of India accorded autonomous research institute status to the Kodaikanal Observatory leading to the birth of the Indian Institute of Astrophysics. Dr M. K. Vainu Bappu, Director of the Observatory at that time, was the moving force behind the creation of the Institute. IIA's aim has been to promote, guide and conduct research in all branches of astrophysics; to establish and maintain astronomical observatories in the country; to co-operate and collaborate with other national and international organizations in the field of astrophysics and related areas; to train personnel and motivate them to take up research in astrophysics; and to disseminate knowledge and information concerning astrophysics as widely as possible. For almost fifty years, IIA has pursued these aims with considerable success. Today the activities of IIA involve astronomical studies covering almost all regions of the electromagnetic spectrum: from gamma-rays to low frequency radio waves.

Vainu Bappu was responsible for the revival of optical astronomy in independent India. After a brilliant academic career at Nizam College, Hyderabad, followed by a doctoral degree at Harvard University, Vainu Bappu worked at the Mount Wilson and Palomar Observatories in California as a Carnegie Fellow. He returned to India in 1954 and came to Kodaikanal in 1960 after a five-year stint as the Chief Astronomer of the Uttar Pradesh State Observatory, Nainital. He had achieved international recognition with the publication in 1957, of the seminal paper, co-authored with Olin C Wilson of Caltech, on the relationship between the Ca II K emission-line width and the luminosity in late-type stars, known today as the Wilson-Bappu Effect. Bappu initiated efforts towards establishing a modern optical observatory for night-time astronomy in peninsular India. The field station in Kavalur was established in 1968 and through Bappu's efforts it flourished into a full-fledged optical astronomy observatory within a decade. The main instrument in Kavalur, an indigenously built 2.34-m optical telescope, was planned by him, though he did not live to see the completion of his dream project as he succumbed to a heart condition in August 1982. After it was completed, the telescope and the observatory in Kavalur were named after Professor Bappu by the late Shri Rajiv Gandhi, then Prime Minister of India.

Bappu had a great love of nature and built the campuses in Kavalur and Bengaluru with meticulous care, planting trees including some rare ones, laying rose gardens, and ensuring that the scientists worked in an environment where the bounties of nature are manifest in their myriad colours.

Vainu Bappu inspired a whole generation of optical astronomers in the country and this tradition continues with the Institute training young and bright students to pursue a fruitful career in astronomy and astrophysics. A whole generation of astrophysicists was trained at the Institute and are pursuing their careers successfully in India and abroad. This generation is expected to carry forward Bappu's legacy by taking fresh initiatives in building larger telescopes and innovative instruments to keep India at the forefront of astronomical research.

The Founder's Day is an occasion when we all come together and pause for a while to take stock of our progress, to reassure ourselves that we are following the path charted out by the founder and make a fresh pledge to dedicate ourselves to the tasks ahead.

## Founder's Day Lectures

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| 2007 | <b>Professor P. Balaram</b><br><i>Measuring and Assessing Science</i>  |
| 2008 | <b>Professor C. N. R. Rao</b><br><i>Doing Science in India : Personal Reflections</i>  |
| 2009 | <b>Professor Govind Swarup</b><br><i>Experimental Astronomy in India : Some Lessons</i>  |
| 2010 | <b>Professor G. Padmanaban</b><br><i>Growth of Biotechnology in India</i>  |
| 2011 | <b>Professor M. G. K. Menon</b><br><i>The Founder of IIA - Vainu Bappu: Many Memories and the Lessons we can learn from him</i>  |
| 2012 | <b>Dr Anil Kakodkar</b><br><i>Management of Mega Science Programmes</i>  |
| 2013 | <b>Professor G. Srinivasan</b><br><i>Down Memory Lane: Vainu Bappu's Dreams Revisited</i>  |
| 2014 | <b>Professor B. V. Sreekantan</b><br><i>Symbiotic Developments in Physics and Astronomy in the 20<sup>th</sup> Century: Where are they leading us in our search for "Reality"?</i> |
| 2015 | <b>Professor S. M. Chitre</b><br><i>Dr Vainu Bappu's Legacy to Solar Astronomy in India</i>  |
| 2016 | <b>Professor Rajaram Nityananda</b><br><i>The Astronomy Mathematics connection</i>   |
| 2019 | <b>Professor Vinod K. Gaur</b><br><i>Plate Tectonics and the Making of Himalaya - An ongoing Process</i>   |