

MVJCE- Physics Department – Guest Lecture- May 2026

Department of Physics organised a "Guest Lecture" for the first-year Engineering students on 21st May 2026 between 10:00 & 12:00 pm. The Guest Speaker was Prof. S. Kasthuriangan, Indian Institute of Science (IISc), Bangalore. The topic of the talk was "Cryogenics Technology: Fundamentals and Applications. The students from the entire Physics Cycle have actively participated in this session.



The department has made the necessary arrangements for the commencement of the Guest Lecture at the MVJCE Auditorium, MVJCE. A session began with a welcome address by Mrs Kavitha, Assistant Professor of Physics. She has started the session by inviting the guest of honour, Prof. S. Kasthuriangan, Faculty of Physics at IISc, Bangalore. She introduces the chief guest before the students and faculty members.

Prof. S. Kasthuriangan started his career after completing his PhD degree in Physics from TIFR, Mumbai, in 1975. Subsequently, he joined IISc, Bangalore and served as a Cryogenic Physicist at the Centre for Cryogenic Technology, Indian Institute of Science, Bangalore. He has more than 40 years of research experience in cryogenic engineering as a scientist. He has executed several R&D and consultancy projects funded by DST,

CSIR, DAE, ISRO and other non-governmental agencies. He has more than 120 publications in national and international journals. For his contributions to Cryogenics, he was awarded the "Lifetime Achievement Award" in October 2022 by the Indian Cryogenics Council at the National Symposium on Cryogenics (NSCS28), held at IIT Kharagpur. After his superannuation in 2013, he served as an advisor on liquid helium plant operations in the Physics department at IISc, as well as a cryogenic consultant to a few other institutions. He is currently involved as a teaching faculty member at TKM College of Engineering, Kollam, and at the Talent Development Centre of IISc's second campus at Kudapura, Challukere, Karnataka.

Prof. Kasthuriangan began his talk with a brief history of cryogenics. The speaker explained the basic concepts of cryogenics and its essential role in various areas. The talk also included a detailed explanation of various methods used in cryogenic studies and developments.

He has discussed the historical developments in cryogenics, different cryogenic fluids & properties. Besides, he showed the various methods for producing low temperatures, like Induced Evaporation, JT Expansion and Adiabatic Expansion, cryogenic Plants, still lower temperatures, Storage of cryo fluids, Cryocoolers - GM, Stirling, JT & Pulse Tube. Followed by a presentation on the various applications of Cryogenics. The lecture also discussed the possibilities and challenges of advanced-level cryogenics research in India over the past few decades. He gave a brief overview of the cryogenic research conducted under his supervision at the Centre for Cryogenic Technology, IISc Bangalore. He finally showed a few images of the experimental setup developed at IISc. He discussed the configuration of cryogenic systems and their applications in real time, such as domestic refrigerators, medical, food, electronics, aerospace, military, chemical, and gas industries. Videos of demonstrations of experiments followed this. He has presented experimental demonstration videos that impressed students and helped them understand the realities of technological involvement and developments in cryogenics. He emphasised the importance and scope of cryogenics. He highlighted the importance and relevance of cryogenics in the engineering syllabus, especially in superconductors, quantum computing, heat and thermodynamics, and related areas. Besides, he gave a brief idea about how and where this cryogenic will be used in the future. After his lecture, 10 minutes were allotted to students to interact with the Chief Guest. The

students have actively participated during the interaction session and expressed their doubts and got them clarified by our Chief Guest. The Speaker was honoured with a Bouquet by Dr Sathish Sugumaran, Associate Professor. The lecture was concluded with a vote of thanks by Mrs Kavitha.



A prime objective of the Guest lecture was to provide first-year students with exposure to advanced theoretical and experimental knowledge with recent applications. The lecture was highly informative towards the fundamentals of cryogenics and its applications. This lecture provides an opportunity for engineering students to learn about cryogenics, including research aspects and prospects in engineering fields. This lecture helped engineering students understand the concepts of cryogenics in quantum computing, superconductors, and low-temperature physics, with experimental aspects of current technology in research laboratories, industry, and commercial settings.