

Day 0: Road to Techkriti

Press Release

With just a day left to the 28th edition of Asia's Largest technical and entrepreneurship festival, Techkriti'22. Thriving all these years, Techkriti has approached and now stands on the edge of the technological frontier, which describes the fundamental structure of being, not as an ontology, but as a framework of emergence and validation of knowledge of being. Let it be affirmed that we may transcend our scientific and cultural roots and redefine our identities, individual or collective. Transcendence opens the door not only to personal transformation but also to confront ethnic stereotypes and prejudices. This edition of Techkriti dwells on accelerating alterations of our scientific knowledge and endless possibilities and hence remaking of our own being in this age of quantum leap. The three-day annual festival, Techkriti, of IIT Kanpur is scheduled from 24th to 27th March.

Entire IIT Kanpur was in high spirits and witnessed an event, "Road to Techkriti," while eagerly awaiting the festival inauguration, which is scheduled for tomorrow. Today there were three enlightening talks. The elucidating talks began with critical thinker Prof. Muhammad Yunus. Muhammad Yunus is a Bangladeshi social entrepreneur, banker, economist, and civil society leader who was awarded the Nobel Peace Prize for founding the Grameen Bank and pioneering the concepts of microcredit and microfinance. He talked about his very own idea of "Creating a World of Three Zeros: Time is now." The three zeroes he talked about are each how he envisions the world should be. These are zero carbon emission, zero wealth concentration, and zero unemployment. One must value what nature provides and shall not take them for granted. There should be measures to prevent global warming. The current profit-driven Economic system has concentrated the capital in the hands of few, leaving the economic system to be nothing but a ticking time bomb. He also added due to COVID, the economic system has somewhat slowed down, and now is the time to change it. Humans are nowadays driven by orders, not creativity; one must aim for what they desire to do, not just for a job. He also appealed to the current generation to take responsibility and lead to make a new civilization as the older generation are comfortable with the world as it is.

Next, IIT Kanpur witnessed Dr. Kurt Wüthrich and his very enlightening talk on "The Molecules of Life: DNA, RNA, and Proteins – History Placed in Perspective." He is a Swiss chemist/biophysicist and Nobel Chemistry laureate known for developing nuclear magnetic resonance methods for studying biological macromolecules. The talk explained in detail DNA, RNA, and protein. Since these are the basis of the life of every living being. DNA is the genetic material of all cellular organisms which defines the biological constitutes of an organism. RNA functions as the information

carrier or the messenger and helps in the synthesis of protein. All of us need to understand this very basis of the existence of life. The talk throws the light upon the same; Dr. Kurt explained about his work for which he received Nobel Prize in Chemistry “development of nuclear magnetic resonance spectroscopy for determining the three-dimensional structure of biological macromolecules in solution.” He worked towards the structures of proteins and DNA. He also highlighted that the work for structures of protein and DNA started in 1936. High-resolution crystal structures of amino acids and dipeptides were found by Corey and Pauling. In 1944, Oswald Avery found out that the genetic material in the DNA. It was not until years later that his conclusion from his experiment was accepted. In 1953, the first structure for a double helix was discovered by James Watson and Francis Crick. However, there was no concrete proof about it until about 40 years later in the 1980s when the structure was approved. It took this long because there was no one was able to synthesize small forms of DNA to study

The final talk was of Prof. Animangsu Ghatak, Professor, Department of Chemical Engineering IIT Kanpur. He touched on the topic of "Biomimetics: An Engineer's Approach Towards Unravelling Nature's Marvels." Through various infographics, videos, and textual aids, he explained in very precise detail about Biomimetics or biomimicry, which is the emulation of the models, systems, and elements of nature for the purpose of solving complex human problems. For example, how mosquitoes save energy (energy loss due to fractures in medium) while penetrating a source by vibrating the proboscis while penetrating through the medium. Mosquitoes have 6 needles compounded together. These closely spaced tips reduce the Force required for penetration. Similarly, a biomimetic adhesive layer is mimicked by a Blood Tick. Other great examples of adhesive are Geckos, whose feet do not get contaminated by dust and are very strong adhesive.

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