MAHARAJA SURAJMAL INSTITUTE OF TECHNOLOGY
C-4 Janakpuri, New Delhi-110058
REPORT ON
LECTURE ORGANISED BY
DEPARTMENT OF APPLIED SCIENCES
(Dated: 09-03-2019)

The Department of Applied Sciences organised a lecture on "Photonic Revolutions"- built on many breakthroughs in optics on Saturday, 9th March, 2019. The lecture was highly educative and interesting. The lecture was delivered by highly accomplished expert Dr Anurag Sharma, Bhatnagar awardee, Professor Department of Physics, Indian Institute of Technology, New Delhi.

The aim of this lecture was to enhance awareness among students and the faculty members about photonics and its revolution. Photonics is the science of light. It is the technology of generating, controlling, and detecting light waves and photons, which are particles of light. The characteristics of the waves and photons can be used to explore the universe, cure diseases, and even to solve crimes. Scientists have been studying light for hundreds of years. The colors of the rainbow are only a small part of the entire light wave range, called the electromagnetic spectrum. Photonics explores a wider variety of wavelengths, from gamma rays to radio, including X-rays, UV and infrared light.

It was only in the 17th century that Sir Isaac Newton showed that white light is made of different colors of light. At the beginning of the 20th century, Max Planck and later Albert Einstein proposed that light was a wave as well as a particle, which was a very controversial theory at the time. How can light be two completely different things at the same time? Experimentation later confirmed this duality in the nature of light. The word *Photonics* appeared around 1960, when the laser was invented by The Theodore Maiman.

Even if we cannot see the entire electromagnetic spectrum, visible and invisible light waves are a part of our everyday life. Photonics is everywhere; in consumer electronics (barcode scanners, DVD players, remote TV control), telecommunications (internet), health (eye surgery, medical instruments), manufacturing industry (laser cutting and machining), defense and security (infrared camera, remote sensing), entertainment (holography, laser shows), etc.

All around the world, scientists, engineers and technicians perform cutting edge research surrounding the field of Photonics. The science of light is also actively taught in classrooms and museums where teachers and educators share their passion for this field to young people and the general public. Photonics opens a world of unknown and far-reaching possibilities limited only by lack of imagination.

Photonics is the science and technology of generating, controlling, and detecting photons, which are particles of light. Photonics underpins technologies of daily life from smart phones to laptops to the Internet to medical instruments to lighting technology. The 21st century will depend as much on photonics as the 20th century depended on electronics

The lecture has enthused and enlightened the participants. The lecture ended with interactive session. The session was concluded with a thank you note by Dr. Ajay Gahlot, Associate Professor and Head of the Department of Applied Sciences.

Prof. Ajay Kumar Singh
(Convener)