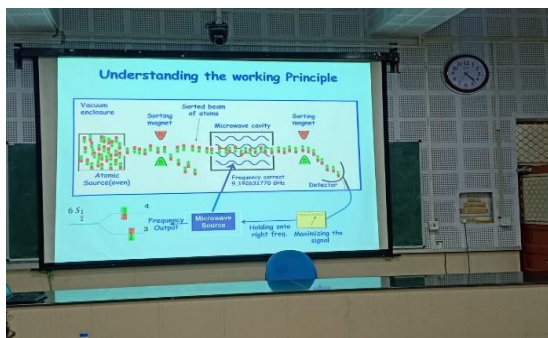


## Technical Talk on 'Atomic Clocks and the Amazing History of Timekeeping'

We are very happy to inform you that **IEEE MTT-S SBC IIT BHU Varanasi** enthusiastically organized a Technical Talk on '**Atomic Clocks and the Amazing History of Timekeeping**' at the ABLT Hall-1, IIT BHU, Varanasi on *30th September, 2019*. We are thankful to **Prof. Amitava Sen Gupta** and all Society members for successful completion of the event as well as to all audience and department of electronics engineering.



On behalf of the Society, the faculty advisor **Dr. Somak Bhattacharyya** welcomed to all students and Faculty members and invited **Prof. Amitava Sen Gupta, Former Outstanding Scientist & Acting Director, CSIR-National Physical Laboratory, New Delhi, India**, for his technical talk. Prof. Sen Gupta started his words with ingredients of a basic clock and the ancient / Vedic methods of subdivisions of day and explained the Surya-sidhanta time units like Ghati, Prana, Vipala etc. He moved towards the need of precise divisions of seconds by giving examples of space based calculations and development of atomic clocks for highly accurate time measurement. During the talk Prof. Sen Gupta showed some interesting pictures, facts and animations related to the various development phases of modern clocks shadow clocks (sun dials, moon dials) water clocks (clepsydras), Quartz clocks, optical clock schematic and modern atomic clocks. He also elaborated the working principal of quartz clock starting from the introduction of quartz crystal. At last Prof. Sen Gupta showed the measurement facilities available at National Physical Laboratory, New Delhi followed by the other advanced time measurement systems available and underdevelopment in the world for the precise time measurement.



After this informative talk, students discussed their doubts. A token of memento was provided to **Prof. Amitava Sen Gupta** on behalf of the IEEE MTT-S SBC IIT BHU from the faculty advisor Dr. Somak Bhattacharyya. Finally, the event was concluded by a formal vote of thanks by Dr. Somak Bhattacharyya.