KMI Colloquium

“Very High Energy Gamma-Ray Astronomy and the Next Generation Observatory CTA”

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Abstract:
Very high energy gamma-ray astronomy explores the non-thermal Universe, probing via their gamma ray emission, the populations, acceleration mechanisms and propagation of high energy particles in our Galaxy and in external galaxies. Despite one century of research, many details of cosmic particle accelerators are poorly understood, as is their influence on the evolution of structures in the Universe. The current Imaging Atmospheric Cherenkov Telescope (IACT) instruments, such as the H.E.S.S., MAGIC and VERITAS telescope systems, together with the gamma ray satellite FERMI, have produced a wealth of exciting results. But many of the results have raised new questions which require more and better data for a deeper understanding of the underlying phenomena. In this situation, the need for a next-generation facility for ground-based gamma ray astronomy became obvious. The CTA project is the international initiative to build the next generation ground-based very high energy gamma-ray instrument. It will serve as an open observatory to a wide astrophysics community and will provide a deep insight into the non-thermal high-energy universe.