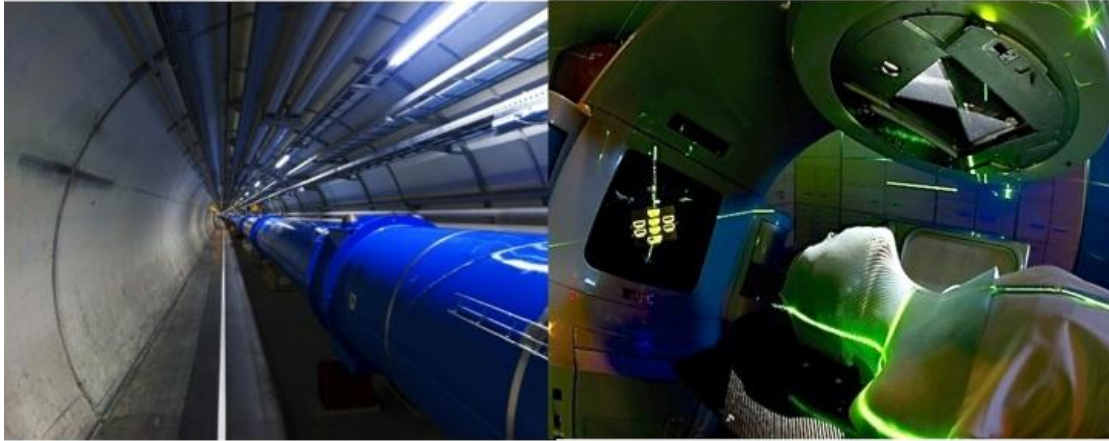


From Accelerator and Particle Physics to Cancer Treatment

JAI – Oxford, Accelerator Science Seminars 2018

Prof Manjit Dosanjh

17th of May at 4.15pm in the Dennis Sciama Lecture Theatre



Abstract:

Particle physics has pushed accelerators and detectors performance to very high limits. The resulting techniques and technologies are bringing real benefits to the medical field especially in early diagnosis and treatment of cancer and other diseases. Indeed particle accelerators are routinely used in hospitals for cancer radiotherapy using X-rays; accelerators also are used to make the radioisotopes needed for diagnosis and treatment of cancer.

The curative role of ionizing radiation for the treatment of cancers has been exploited since the discovery of X-rays and accelerators have been used for cancer therapy starting with the first linear accelerator treating patients in London and Stanford in the early 1950s.

However, access to cancer treatment is a major challenge, with around two thirds of cancer patients globally having no access to radiation. The seminar will address the current status of making both low-energy linacs for conventional radiation therapy and hadron therapy facilities which deliver the state of art radiation therapy more affordable, easier to use and compact. This will have a major impact in increasing access to radiotherapy worldwide.



Manjit Dosanjh is Senior Advisor for Medical Applications at CERN. After obtaining her degree in Biochemistry/Chemistry at the University of Leeds and PhD in Biochemical Engineering from the University of Birmingham and then went to Massachusetts Institute of Technology as Postdoctoral fellow. She has held positions as a senior scientist at LBNL Berkeley, BEST professor Jackson State University, visiting professor at University of Padua and University of Surrey. Since joining CERN in 2000, she has focused on applying the technologies developed for particle physics to the life sciences domain. She played a key role in launching the European Network for Light Ion Hadron Therapy (ENLIGHT), a multidisciplinary platform that takes a collaborative approach to particle therapy research in Europe, and she been the chair of the network since 2006.

www.cern.ch/enlight.