DESY
Particle and Astroparticle Physics Colloquium

VIDEO Colloquium:
FLASH Irradiation – can cancer be treated within a second?

Tuesday, 02 March, 2021 Special time! **Webcast 13:00 h**

Vincent Ehrhardt (Charité Berlin, Radiation Oncology)

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

FLASH Irradiation

can cancer be treated within a second?

In Germany, more than 50% of cancer patients are treated with radiation therapy alone or combined with other modalities . In general, the treatment time of a conventional radiotherapy can take a few minutes a day and sometimes lasts for weeks. The daily and intensive applications place a great burden on the patient and can significantly impair the quality of life.

Already more than four decades before, scientists had found out that irradiation at ultra-high dose rates led to altered radiobiological effects in cells. Unfortunately, the results did not find their way into everyday clinical practice.

For several years this special effect, also known as the FLASH effect, has been rediscovered and researched by various groups all over the world. Some pioneering publications have shown that irradiation at ultra-high dose rates causes significantly fewer side effects (minus 30-50%), compared to the conventional dose rate radiotherapy. In addition, a cancer therapy with FLASH could not take weeks, but only seconds or even less.

For the first time since decades of radiation optimization, we now have the opportunity to revolutionize radiotherapy. This step is possibly comparable to immunotherapy in internal oncology.

There are many factors that need to be investigated in the future. In addition to the properties of the beam (dose rate, pulse length, number of pulses, duration of exposure) and the exact dosimetry, this also includes the precise reaction of different tissues to the different beam parameters. These multifactorial studies require scientists from a wide variety of fields who are ready to break new ground and make cancer therapy more effective.

In 2020, the Charité Berlin started the first FLASH experiments with protons in cooperation with the Helmholtz Center Berlin. A cooperation with DESY could enable us to discover the broad spectrum of electron beams and to develop medical applications.

Dr. med. Vincent H. Ehrhardt
Department of Radiation Oncology

This is a VIDEO COLLOQIUM!

https://zoom.us/j/94043737272?pwd=MENvaTByM3FFL2J5cU1pUHpKMjNNUT09

Accelerators | Photon Science | Particle Physics
Deutsches Elektronen-Synchrotron
A Research Centre of the Helmholtz Association

HELMHOLTZ SPITZENFORSCHUNG FÜR GROSSE HERAUSFORDERUNGEN

DESY.