Seminar Fakulteta za fiziku

Vrijeme: srijeda, 30. travnja 2025. u 12:00

Mjesto: O-155, Fakultet za fiziku, Sveučilišni kampus, Radmile Matejčić 2

Jezik: engleski

The link between irradiation medical facilities and particle physics technologies: present status and future perspectives

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Abstract

The aim of this seminar is to describe how strong is, since long time, the link between particle physics research and medical physics applications. The chosen case to describe this link is the proton/hadron irradiation therapy, a line of research that originates in the field of elementary particle physics and that is today fundamental in medical treatment as a tool for fighting cancer. Proton therapy was born from an intuition of the American physicist Robert Rathbun Wilson in 1946, but only many years later, in 1989-1990, it become a safe and effective treatment methodology practiced in hospitals. This was possible thanks to the enormous progress achieved in international research laboratories such as, between the others, the Fermilab Laboratory in Chicago and the CERN laboratory in Geneva, where complex and precise particle accelerators were built that made this treatment practicable on human patients.
After a brief presentation of the basic principles and the historical evolution of proton therapy, will be described the main centers connected to the Italian National Health System where proton/hadron therapy is delivered on patients with cancer disease. After this there will be brief introduction on what is currently considered the new frontier of cancer treatment with irradiation, namely the “FLASH Irradiation”. To conclude, the research activities that the University of Foggia carries out in cooperation with the Trento FBK Reserch Center on these topics will be described.