



Contribution ID: 29

Type: not specified

The KN3000 accelerator and the history of the nuclear physics in Florence in the last three decades of the past century through a museum itinerary

Thursday, September 9, 2021 10:40 AM (20 minutes)

The “Garbasso” building housed the Institute (later Department) of Physics of the University of Florence from 1921 to the early 2000s. It was built on the hill of Arcetri, close to the Astronomical Observatory and to the Villa that many years earlier had hosted Galileo in the final phase of his life.

Among many research activities developed here during almost the entire 20th century, the history of the KN3000 accelerator is of particular interest. In fact, the electron-injector of the electrosynchrotron installed by CNEN in Frascati, once dismissed, was assigned in 1971 to the nuclear physics group in Florence and here was converted to a positive-ion accelerator, exploiting the locally available technological expertise. Afterwards, it has been used for research in pure and applied nuclear physics for three decades. Details about this research activity can be found in [1,2].

After the installation in 2003 of a Tandem 3-MV accelerator in the new Physics Department of the University, in Sesto Fiorentino, the KN3000 was decommissioned and left in the room where it has served for years. After a long period of inactivity and associated degradation, part of the original staff (F. Celletti, P. Del Carmine, G. Poggi and N. Taccetti) suggested to restore the accelerator and associated equipment to create around it a museum itinerary dedicated to the history of nuclear physics in Florence.

In the planned museum the accelerator is one of the stages of a wider route (named “The Path of Science in Arcetri”) which, starting from Villa Galileo, also includes two institutions whose operations are still based on the hill of Arcetri: Observatory (OAA-INAF) and National Institute of Optics (INO-CNR). The project, mainly funded by Fondazione Cassa di Risparmio di Firenze, is in an advanced stage of realization and will be completed by 2022.

1. N. Taccetti, Fisica con gli acceleratori in Arcetri - Il Colle di Galileo vol. 6, 1 (2017) 19-38
2. P. A. Mandò, Nascita e prime fasi della attività di fisica nucleare applicata a Firenze - Il Colle di Galileo vol. 2, 2 (2013) 27-42

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Session Classification: Scientific instruments

Track Classification: sisfa 2021