The Beam Profile Visualization and Control System for COMBAS Setup

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For effective operation of the fragment - separator of the setup COMBAS one needs to have a possibility to observe of the profile of a primary beam and its position on the target. The important characteristics of the separator, as a transmission factor and resolution depend on these parameters. Because of some instability of the cyclotron it is necessary to observe over the beam parameters and from time to time introduce correction amendments. The scan of the beam is carried out in mutually perpendicular directions X and Y by a changing of voltage values U1 and U2 in the first and second collectors. A detailed profile of a beam can be obtained putting the measured values of a current in a collector on a coordinate plane U1 and U2. The outcomes of the scan are input data of a visualization package. The package allows to visualize data both in on-line and off-line modes. Visualization of the beam profile is developed on the basis of graphic library OpenGL which operates inside the interface constructed with the help of the toolkit FLTK. When launching the package the window containing central field of survey of the beam profile and two auxiliary areas with its projections on axes X and Y appear on the screen (see Fig. 1). With small modifications the package can be used for a wide spectrum of setups which use the accelerator beams.
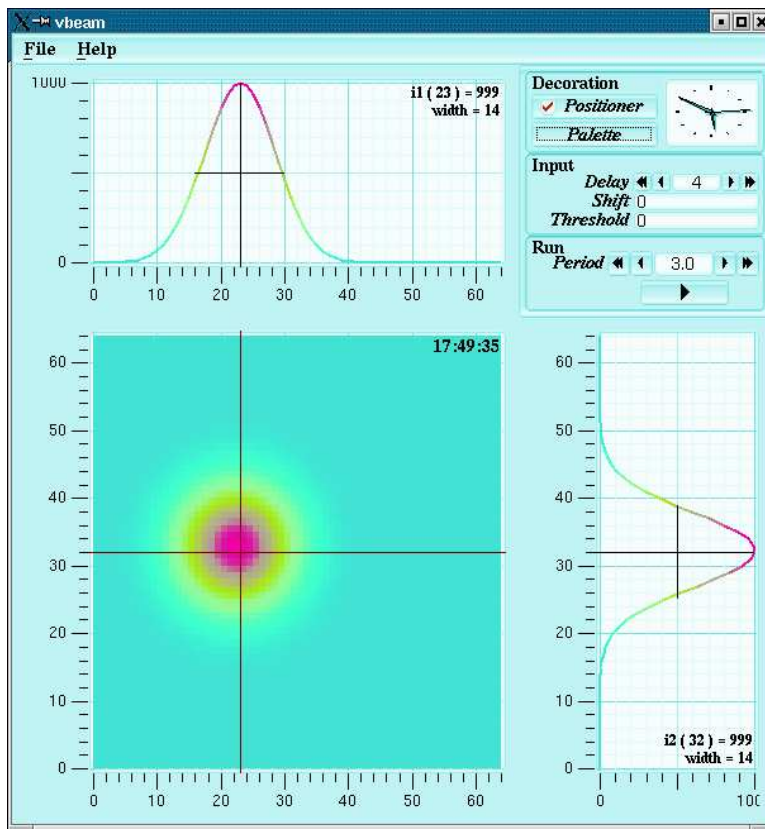

Fig. 1. The main window of the beam profile visualization system

References

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