

Abstract

Master Degree

on theme

«Visualization results of work by interdisciplinary complex of modeling based on ROOT system»

by

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The actuality

Information visualization has taken an important role in the study of experimental data and simulation results. To do this, are now widely used various packages, such as gnu-plot, MatLab, MatCad and others. Each package is designed to perform certain specific tasks for reading the data pre-processing them, and finally rendering. Most packages have built-in scripting language, and sometimes compiled that allows you to configure the system to work with different formats of input data.

However, very often, these packages have certain disadvantages, namely, payment, and the opportunity to work on only one platform. Packages of circuit design for today are characterized by the presence of a version that runs on most platforms. Is no exception and domestic package circuitry design ALLTED.

All of this raises the requirement to create platform-independent visualization tools, which also had the opportunity to spread a free license, and possibly at the level of the source code.

All these requirements to the means of rendering the development meets the CERN scientific complex in the form of a package of object-oriented programs and libraries «ROOT».

The purpose

The main objective of this work is to study the possibilities of ROOT to visualize the results of an interdisciplinary complex. To solve this problem, based on the architecture and features of the complex, it was decided to create the Internet - the service output of graphics that can be used in conjunction with the existing set of services.

Solved problems

As part of mentioned goal, next tasks were taken into consideration:

1. The study of architecture and features of the complex interdisciplinary in terms of connectivity visualization systems, on the basis of ROOT;
2. Investigation of the graphics capabilities of the system in the ROOT of the problem;
3. Develop methods to use ROOT to visualize the results of an interdisciplinary complex;
4. Practical implementation mechanism for visualizing the results of the example of the complex package Allted.

Achieved results

Having resolved described tasks, the author defends:

- Results of research capabilities of ROOT;
- The results of the use of ROOT, to visualize the results of an interdisciplinary complex;

Scientific novelty of the work

Scientific novelty of the work can be described as next:

- The results of the analysis capabilities of ROOT, developed recommendations for the use of the complex WebAllted.
- The obtained practical results of the use of ROOT to visualize the results of complex WebAllted.

The practical value of the work

The practical value of the work consists of next:

- Developed and put into practice the method of use ROOT to visualize the results of an interdisciplinary complex.

Conclusions

- The features and graphics capabilities of ROOT. The recommendations and examples on the use of graphics.
- The possibility of using ROOT, to visualize the results of the complex.
- A method for the introduction and use of the system.
- Practically applied the developed technique.

Diploma thesis contains 106 pages, 31 images, 3 tables, 15 references.

Keywords: Visualization, ROOT, interdisciplinary complex of modeling, Allted, technique of using ROOT.