THE CODE ELENA: RADIATION PROPERTIES OF ELEMENTS AND ISOTOPES FOR THE ANALYSIS WITH NEUTRONS

Kabina L.P., Lisin S.S., Mitropolsky I.A.

*B.P.Konstantinov Petersburg Nuclear Physics Institute, Russia*

E-mail: mitrplsk@pnpi.spb.ru

The code ELENA (ELEment NAvigator) is designed for the information providing of X-ray fluorescent, neutron activation and neutron radiation analyses of the elemental and isotopic compound of materials. The actual data are presented in the tables and on the plots placed in windows with corresponding bookmarks, providing search. The bookmark hierarchy reflects the information structure of data and is limited by two levels: properties of an element and properties of an isotope. The follow data are presented for elements

- principal physical and chemical properties;
- energies and intensities of the characteristic X-radiation lines;
- isotopic abundance and properties of isotopes known for the element.

With any element selected, the following properties of its isotopes are given

- energies, lifetimes and quantum numbers of low-lying excited states;
- energies and yields of gamma lines in decay of the isotope;
- cross-section in the radiation capture of thermal neutrons and the resonant integral value;
- energies and intensities of the γ-lines from the radiation capture of neutrons.
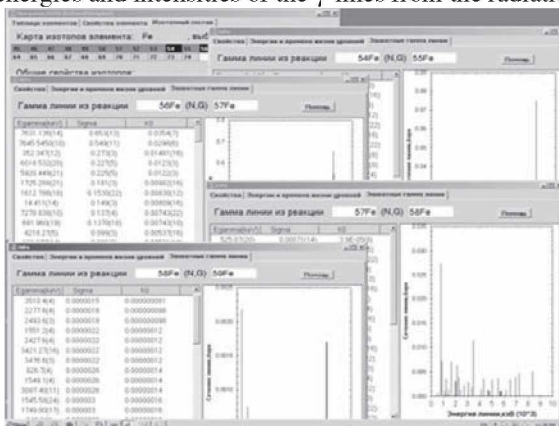
The code ELENA is written with language C# in the environment MS Visual Studio 10 and works under control of the operation system MS WINDOWS. The package Microsoft.NET Frame Work Version 2.0 or above is necessary to use the code. The library ZedGraph.dll is applied for the graphic presentation of spectra.

The code ELENA is supplied with detailed comments and can be used for training purposes.

1. L.P.Kabina *et al*. PNPI Report 2942, Gatchina, 2014. P.16.
2. L.P.Kabina *et al*. PNPI Report 2897, Gatchina, 2012, P.17.