

High Energy-Resolution Measures of Cross-Sections at RIBs on the "Method of Spectra Superposition" - MSS

A.A. Gafarov, Yu.N. Koblik, A.D. Avezov, B.S. Yuldashev

Institute of Nuclear Physics, Tashkent, Uzbekistan E-mail: renat@sult.silk.org

In order to estimate the highest possible energy resolution in excitation function-EF (beam-energy dependent cross-sections) , evolution of the initial beam-particle energy spectrum and distortion of the product-particle energy spectrum both are considered as functions of corresponding basic factors involved step by step in the low-energy elastic scattering just as an example.

The EF-energy-resolution independence on the beam (!) and contribution in the EF-distortion only of factors on the product-particle trajectory both are clearly shown.

During some last years the MSS was proven and successfully used in a number of experiments on low energy nuclear physics [1-4].

High significance and importance of the MSS-approach, as of a background for a large set of new energy-precise experiments especially at the Radioactive and Heavy-ion beams, is stressed promising reach results carried with a lot of new information.

1. A.A.Gafarov, A.K.Kadishnov, Yu.N.Koblik, B.S.Mazitov, V.A.Pirogov
Setup for measurement the differential cross-sections of nuclear reactions using the Method of Spectra Superposition. (Russian Journal) PTE N^o 4. 1989. p.47-53.
2. A.A.Gafarov et al.// *Method of Spectra Superposition in Measures of Excitation Function of Reaction $^{12}C(p, p_0)$ with Energy Resolution ~ 30 keV.* / Russ.Jorn. Izvestia AN SSSR, Phys.Ser.V58 N^o 5, 1994, p.115-126.
3. A.A.Gafarov, PHD degree thesis // *The Method of Spectra Superposition for investigations of nuclear reactions at accelerator beams.*/ UDK 539.172.17, 1995, p.1-137.
4. A. D. Avezov, A. A. Gafarov, Yu. N. Koblik, D. A. Mirkarimov, A. V. Morozov, B.S. Yuldashev // *Resonances in Excitation Function of Reaction $^{12}C(p, p_0)$ in region $E_p=16\div 19.5$ MeV.* /LEND-95 XV Nuclear Physics Divisional Conf., St.Petersburg, Russia, April 18-22, 1995. p.469-472.