

**Ukrainian Nuclear Data Centre Progress Report, 2012/13**  
**Summary of Nuclear Data Studies by Staff of the Ukrainian Nuclear Data Centre**  
**Editor: O. Gritzay**

**Technical Meeting on the**  
**International Network of Nuclear Reaction Data Centres**  
**23-25 April, 2013, IAEA, Vienna, AUSTRIA**

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Ukrainian Nuclear Data Centre (UkrNDC) is subdivision within the Neutron Physics Department at the Institute for Nuclear Research of the National Academy of Sciences of Ukraine. UkrNDC has 4 permanent researchers. During year under review three members of the staff were involved in experimental neutron data measurements at the Kyiv research reactor.

### **Compilation**

We continue collection and compilation of experimental neutron, charged particle and photonuclear data. Number of the new EXFOR's entries sent to the NDS IAEA by UkrNDC is the following:

- for neutron data – 2 entries (32231, 32232, 32233);
- for charged particle data – 4 entries (D5076, D5090, D5091, D5093);
- for photonuclear data – 4 entries (G4036, G4037, G4038, G4039).

We realize review of compilation scope in home journals and scientific issues:

- "Nuclear Physics and Atomic Energy";
- "Ukrainian Journal of Physics";
- "Problems of Atomic Science and Technology", Series "Nuclear Physics Investigations";
- Uzhhorod University Scientific Herald. Series Physics;
- Bulletin of Taras Shevchenko National University of Kyiv Series: Physics & Mathematics;
- Proceedings of the International Conference NPAE-Kyiv2012.

Preparation of the numerical view of the neutron spectrum after the interference filters used at the Kyiv Research Reactor is in progress.

### **Collaboration**

We continue our collaboration with the Nuclear Physics Department of Taras Shevchenko National University of Kyiv.

- The teaching course “*Nuclear Data for Science and Technology and modern computer codes for nuclear data processing*” (36 hours) has been lectured in 2012-2013 for the fifth-course students of NPD KNU. This course includes the following items: ENDF/B libraries, EXFOR system, ENSDF library, the use of the PREPRO code in work with the ENDF libraries, the introduction to NJOY code system, the Network of Nuclear Reaction Data Centers and the use of the on-line services.

- The teaching course “*Experimental Methods at Atomic Power Engineering*” (36 hours) are lectured in 2013 for third-year students of NPD KNU.

We continue our collaboration with Pavel Sukhoi State Technical University of Gomel in frame of the task on development and organization of scientific methodology and information databases for nuclear technology calculations in the Republic of Belarus.

### **Customer Services**

- During 2012-2013 the data for users requests were prepared and adapted (from ENDF, ENSDF and EXFOR libraries) for our institute researchers and for ones from other institutes. The organizations, whose requests on nuclear data have arrived and were executed in the accounting period:
  1. Department of Nuclear Physics of the Institute for Nuclear Research (INR) of NASU.
  2. Department of the Theory of Nuclear Reactions INR of NASU.
  3. Department of Nuclear Reactions INR of NASU.
  4. Uzhgorod Institute of Electron Physics of NASU.
- The UkrNDC site is operating. Ukrainian customers, especially students and those physicists, who wish to prepare the point-wise and multigroup cross sections self-dependently, but do not have a good experience in it, use this site very often. Address of the UkrNDC site: <http://ukrndc.kinr.kiev.ua>.
- The UkrNDC site is also used by Vietnam colleagues. On their request the code Filter-7 included in the code package FILTER was transformed for the filter calculations at the Dalat Research Reactor. This new version (Filter-8) will be included in the next modification of the UkrNDC site.

### **Experimental Neutron Data Measurements**

- The total neutron cross sections for chromium-52 were measured using a method of the average energy shift at the neutron filtered beam of the Kyiv Research Reactor (KRR).
- The measurements of the total neutron cross section for natural carbon in the energy region  $90 \div 160$  keV were fulfilled using a method of the modified filtered beams at the KRR.

### **Visits and Conferences**

- A. Grymalo took part in the Conference of Young Scientists and Post-Graduates IEP'2012, which was held 24-27 May 2011 at the Institute of Electron Physics, Ukrainian National Academy of Sciences, Uzhhorod, Ukraine.
- O. Gritzay took part in Regional Workshop on Education and Training Practices with Research Reactors, which was held 4-8 June 2012, Prague, Czech Republic.
- O. Gritzay, O. Kalchenko, N. Klimova, A. Grymalo took part in the 3rd International Conference Current Problems in Nuclear Physics and Atomic Energy, which was held 3-7 September, 2012 in Kyiv, UKRAINE.
- O. Gritzay took part in IAEA Technical Meeting “Use of Neutron Beams for High Precision Nuclear Data Measurements”, which was held 10-14 December 2012, Budapest, Hungary.